Report on the Quality of Marine Surface Observations

Report Number 28

July to December 2002

Met Office Data Assimilation

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REPORT ON THE QUALITY OF MARINE SURFACE OBSERVATIONS:

JULY TO DECEMBER 2002

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1. INTRODUCTION

In 1985, the Commission for Basic Systems (CBS) agreed that there was a need for GDPS / Global NWP centres to monitor the quality of observations available on the GTS and to exchange monthly lists of stations providing seemingly erroneous data. In 1988 three lead centres were nominated which would have a co-ordinating role of producing, at six-monthly intervals, consolidated lists of suspect stations for given data types together with information on the nature of the error. The Met Office was allocated the role as lead centre for marine surface observations which encompass observations from ships, drifting buoys, moored buoys and other fixed marine platforms. This is the twenty-eighth of its reports and covers the period July to December 2002. For each observing platform identified as suspect, values are supplied for the number of observations received at the Met Office, the number of these observations with gross errors, the observations' mean differences from the background values used by the numerical data assimilation system and the standard deviations of these differences.

Following the CBS recommendations, by the end of the 1980s there were four centres active in the monthly exchange of monitoring information; The Met Office, ECMWF, RSMC Tokyo and NCEP. Since then, a number of other centres have also begun to exchange this information and these reports have included data provided by Météo-France as of report number 23. Initially, the only monitoring information exchanged on marine surface observations related to pressure, and the first two WMO reports addressed that parameter alone. Since then, these reports have contained monitoring statistics for wind observations, now being exchanged between centres on a consistent monthly basis. In addition, the report contains monitoring results for sea-surface temperature (SST). Due to changes in the observation processing system and database structure, there was no monitoring of SST data at the Met Office from May 1998 to September 2000. The SST information presented in reports 20 to 23 was therefore compiled, with permission, from the monthly NCEP monitoring data and so is not directly comparable with that presented in other reports. SST monitoring was reinstated at the Met Office from October 2000.

2. MONITORING METHODS

Errors in observations may arise from a number of sources: the instrument may be malfunctioning, figures may be mistaken while being transferred manually, or there may be corruption of data during transmission. Errors can also arise in the pressure report if the adjustment to sea level is made incorrectly or not at all, and a poorly sighted anemometer can result in errors in the observations of wind. For SST observations, the depth at which the observation is made can be crucial. 'Surface' observations from buoys are usually made at a depth of around 0.5m, whereas ships may take a measurement between a depth of 10m and the surface, depending on the method used. At present, there is no indication given within the report of the observation's depth, so it is not possible to determine the significance of this factor. (By contrast, satellites measure the temperature of the ocean's 'skin' which is generally slightly cooler than the temperature immediately beneath, by several tenths of a °C, as a result of evaporative cooling and other surface processes.)

Some errors can be detected by applying checks on the code format and the internal consistency of the report (for example: are the position and pressure consistent with a report 6 hours earlier?). Checks on spatial consistency are possible if there are other nearby observations. However, such quality checks are unable to identify errors on all occasions and it is recognised that the numerical data assimilation systems in use today can provide global reference values applicable in observation monitoring. The short-term forecast from the previous numerical analysis, commonly known as the first-guess or background field, provides perhaps the most useful information on observation quality, as it represents an accurate and spatially consistent estimate of the observed value which is independent of the observation itself. Observation-minus-background (hereafter referred to as O-B) differences are at the core of all monitoring work by GDPS centres. Unlike wind and pressure, SST monitoring at the Met Office used to be performed against the analysis field, this being judged a sufficiently good approximation due to the slowly varying nature of SST, relative to parameters measured above the surface. As of October 2000, background values have been used but with the slowly varying nature of SST used to assume persistence, such that the background is in fact the previous analysis. (These analyses are performed daily at the Met Office from an assimilation of both surface and satellite observations.) Thus the SST monitoring at the Met Office is no longer limited by a dependence upon the observations themselves.

Taking all marine surface observations together, the values of O-B have distinct characteristics. The vast majority of the observations show quite small departures from background and the distribution of O-B is nearly Gaussian, with little or no bias. The errors in the background field probably contribute most to the values of O-B for these observations. There is often, however, a smaller group of observations departing much more from the background, for which observation error is the only reasonable explanation for the large values of O-B. Studies of the distribution and variation of O-B at different points around the globe enable reasonably accurate estimation of background error, and this provides the basis for the monitoring methods described here. Those marine observing platforms for which, in a sufficiently large sample, the observed values differ from the background by an amount significantly in excess of the estimate of background error, may be labelled as suspect with a high degree of confidence. The limits used here to identify suspect observing platforms have been set sufficiently stringent to preclude much likelihood of the background, rather than the observations, being in error.

Each monitoring centre produces a monthly list of the identifiers of marine observing platforms considered suspect according to the departure from the model background values. All observations, both synoptic and asynoptic, are assimilated. At the Met Office (as of May 2000) and ECMWF, the background fields are interpolated to the observation time whereas Météo-France, Tokyo and Washington, use the background value valid at the nearest main synoptic hour.

Given that the number of observations made during the month is at least 20, then the condition used by all centres for obtaining platforms for the suspect lists is that at least one of the following criteria are satisfied:

Pressure

1. the | mean of O-B | ≥ 4.0 hPa
2. the standard deviation of O-B ≥ 6.0 hPa
3. the percentage of gross errors ≥ 25

Wind

1. the | mean of O-B | $\geq 5.0\mathrm{ms}^{-1}$ (Speed)
   $\geq 30°$ (Direction)
2. the standard deviation of O-B $\geq 80°$ (Direction)
3. the percentage of gross errors ≥ 25

Gross errors are defined as observations that depart from the background by more than 15hPa (Pressure) or $25\mathrm{ms}^{-1}$ (Vector Wind). The mean and standard deviation of the samples are evaluated excluding gross errors and in this way occasional 'wild' values resulting from, for example, corruption during transmission, do not influence the sample characteristics. Direction statistics are also calculated excluding values in light winds, where either the observed or background speeds are less than $5\mathrm{ms}^{-1}$.

Relatively little information is exchanged between centres on a regular monthly basis for SST.

The monthly results for pressure from all five monitoring centres show considerable agreement, both on the observing platforms listed as suspect and the values of the mean and rms difference from each centre's background. Differences between the monthly suspect lists are usually due to the different numbers of observations available at each centre. The cut-off varies between 6 and 24 hours. There are also some unexplained variations in the data receipt between the centres, which may be due to problems in the GTS or in the local procedures for handling the data. Monitoring results for wind speed also show reasonable agreement on the mean and standard deviation from each centre's background; there is less agreement as to which platforms are listed, reflecting the greater uncertainty when monitoring wind speed.

This report draws together all the monthly monitoring results exchanged on marine surface data and identifies a list of observing platforms that have provided observations of poor quality over the 6-month period. In drawing up this list, there have been a number of guiding principles:

1. As with the monthly lists, accuracy is assessed relative to background values.
2. Observing platforms are listed only where there is a very high degree of confidence that the observations rather than the background values are in error.
3. At least 40 reports are required over the period in which the observations are considered suspect.
4. The perceived accuracy over the last part of the six-month period is of greatest importance; observing platforms are not listed if there has been recent improvement and their reports are at present without major error.
5. Given that the number of observations made during the period is greater than or equal to 40, then the condition for listing a platform as suspect in this report is that at least one of the following criteria are satisfied:

Pressure

1. the | mean of O-B | ≥3.5 hPa
2. the standard deviation of O-B ≥5.0 hPa
3. the percentage of gross errors ≥25

Wind

1. the | mean of O-B | $\geq 5.0\mathrm{ms}^{-1}$ (Speed)
   ≥30° (Direction)
2. the standard deviation of O-B $\geq 6.0\mathrm{ms}^{-1}$ (Speed)
   ≥60° (Direction)
3. the percentage of gross errors ≥25

SST

1. the | mean of O-B | ≥3.0 °C
2. the standard deviation of O-B ≥5.0 °C
3. the percentage of gross errors ≥25

All observations having gross errors are excluded from the calculation of the mean and standard deviation of O-B. The same gross error limits apply in these reports as in the monthly lists. The Met Office now sets a limit of 10°C for SST but this was previously 5°C and NCEP use 15°C. Also, criteria previously used in these reports were based on O-A statistics. Data presented here is, then, not directly comparable with that in earlier reports.

The limits on the bias and standard deviation O-B are more stringent than those for the monthly lists because the sample sizes are larger. If there has been a recent change in quality, they are only applied at the end of the period. Identifiers can be listed in this report without appearing on any of the monthly lists. This is can be due to a representative sample only being obtained over several months or deterioration occurring at the end of the period for platforms reporting very frequently. The 6-month list is longer than most of the monthly lists because many ships cease reporting for variable periods of time, in many cases while they are in port or out of service. Only over a relatively long period, probably more than 6 months, is a representative sample obtained from all those ships providing observations.

3. MONITORING RESULTS

The monitoring results presented in this report relate only to data exchanged over the GTS. Observations from marine platforms are transmitted in one of two formats: the SHIP code, used for most observations from ships, moored buoys and other fixed platforms, and the BUOY code, used mostly for observations from drifting buoys. In this report, the term "ship observations" refers to those received in the SHIP code and the "drifting buoy observations" to those received in BUOY code. The SHIP code indicates whether the observation was made manually or by an automatic system and accordingly the sub-divisions "manual ship" and "automatic ship" will be defined.

3.1 Pressure

In the six-month period, July to December 2002, 2092705 observations of pressure were monitored at Bracknell from 4311 manual ships, 504 drifting buoys, and 380 automatic ships. The number of reports received from individual ships varies greatly as Table 1 demonstrates; apparently, a large percentage only report once. The reason for this is unclear but it may be a result of errors in the part of the message giving the ship identifier. A comparison with the corresponding table in report number 27 shows a decrease in the number of identifiers but a detailed look at the table shows a significant decrease in the number of identifiers reporting <10 observations. It is suspected that this is due to improvements in coding or transmission. Despite the decrease in identifiers, table 2 shows an increase in the numbers of observations when compared to the same period in the previous year. Since most marine observations are located in the northern hemisphere, there is inevitably some seasonal variation in the number of vessels reporting, especially in the case of buoys, since new or replacement buoys are generally deployed in better weather conditions.

Table 2 shows the number of observations of pressure that have been received over the GTS at the Met Office and processed, over past 6-month periods. Due to changes in data storage methods in May 1991, report number 5 covered the period January to May 1991 only, thence figures for January to June 1991 have been scaled-up in order to make a fair comparison with other 6-month periods; this may not be entirely accurate. Further changes in November 1993 for drifting buoys and automatic ships for pressure and winds, may have allowed duplication of a few identifiers in totals for the period June to December 1993, as reclassification from one observation type to another occurred. The observation distribution shown in Table 2 will also have been affected in the long term with a slight shift towards drifting buoys; no duplication of observations occurred however. (SST observations were not affected by the November 1993 change.) The period January to June 1998 is also based on only 5 months data (February-June), but the numbers of observations received have been scaled up, as in the 1991 case.

Figure 1 shows the information presented in Table 2 more clearly. It can be seen that the total number of observations remained fairly steady with only minor fluctuations until report number 11 (January-June 1994). Since that time however, there has been a steady increase in the total, with the number of observations of pressure nearly doubling between reports 11 and 16 (July-December 1996), a period of just 2.5 years. This increase was due to the larger number of reports from each drifting buoy, as reliability has improved; many drifting buoys now make several thousand observations of pressure during a 6-month period. The number of reports from drifting buoys now exceeds those for manual ships by around 75 %, with about 45 % of all marine pressure observations now being made by drifting buoys. The sudden increase seen in the number of automatic ships in report number 19 (January-June 1998) was due to observation processing changes at the Met Office, whereby all reports from 'automatic ships' are processed, rather than only one report per 6-hour assimilation period, as previously. Since then there has been a steady increasing trend in the total number of pressure reports.

A histogram of O-B differences for all ship pressure reports in the period July to December 2002 is shown in Figure 2a, together with the Gaussian distribution with the same mean and standard deviation. Although almost all values fall within the range +5 to -5 hPa, a small number of much larger values, presumably resulting from erroneous observations, contribute to the large standard deviation of the population. The distribution for all those observations which fail the automatic quality-control checks is broad (Figure 2b). The remaining 94 % of the observations, that pass the quality checks, show a distribution of O-B which is very close to Gaussian (Figure 2c) with mean 0.0 hPa and standard deviation 1.4 hPa. The principal contribution to the standard deviation is assumed to be from background errors.

A global estimate of the background error, such as that provided above, can conceal large spatial variations. Background values will be more accurate in data-rich areas (e.g.: in the North Sea or Mediterranean) or where the meteorological variability is low (e.g.: the tropics). The geographical distributions of the mean and standard deviation of the values of O-B from all ship observations which pass the quality-control checks, have been calculated for 10-degree latitude-longitude boxes and are plotted in Figures 3 and 4. In most areas, the magnitude of the mean is less than 1.0 hPa, the exceptions being generally where the sample size is small. The standard deviation is generally around 1.5 hPa. The number of ship pressure reports accepted by the model quality control in each 10-degree box is shown in Figure 5.

Table 3 contains a list of those ships and drifting buoys considered to have produced suspect observations of pressure in the period July to December 2002. Values over the six-month period are given for the number of observations of pressure available for Met Office global model runs, the number of observations differing from the model background value by more than 15 hPa (gross errors), and the mean and standard deviation of the model O-B. The number of times the identifier has appeared on the monthly suspect lists from the five monitoring centres is also given. In order to give a detailed picture of the frequency of reporting and any changes in the observation accuracy, 6-month time-series of O-B differences are given at the end of the report for each of the identifiers listed.

An interesting characteristic of the errors identified here, which soon becomes obvious on inspection of the time-series charts at the end of this report, is that most can be attributed to a bias in the observed pressure. In many cases, the bias is constant over the whole monitoring period; although some values depart greatly from the sample mean, presumably due to some gross error in the observation, these are generally isolated instances. In only a few cases are there regular large random departures from background. Those observing platforms listed in Table 3 which appeared in report number 27 (January to June 2002) have been indicated with an asterisk. A comparison of the statistics given here with those in the report number 26 (July to December 2001), clearly indicates that the bias in the pressure observations from a few ships has hardly changed for more than a year.

Statistics for those marine observing platforms listed in report number 27 and which do not appear in Table 3b, are given in Table 4 along with comments on the quality of their pressure observations. Time-series charts of the pressure observations from these platforms are not given. Less than 40 reports were received in the 6-month period for many of the ships on this list. Approximately 45 % of them, however, do show some improvement in the quality of their observations.

3.2 Wind

Monitoring observations of wind is more problematical than pressure. On most observing platforms, wind is measured using anemometers; the reported speed depends upon the averaging period and instrument height above sea level, which varies a great deal between platforms. Since large structures distort wind flow, the anemometer position relative to the wind bearing and platform structure does affect the measurement. (These factors do not apply to those ship observations where wind speed is based on visual estimates of the sea state state e.g. the UK VOF fleet.)

In these monitoring results, the background winds are valid at a height of 10 metres above mean sea level; slightly lower than the average height of ship anemometers. Where anemometer height is much different from 10 metres, a significant O-B speed bias may be evident. Examples of this are, observations from oil rigs or tankers with anemometer heights of 50m or more more (although the speeds reported by some rigs are now adjusted on board to be nominal 10m values) and buoys, where the anemometer can be as low as 2m.

In the period July to December 2002, 1210720 wind observations were available for monitoring at Bracknell, from 4396 manual ships, 125 drifting buoys, and 436 automatic ships. (More detail is given in Table 1.) The number of reported manual ship identifiers has decreased in the same way as for pressure and the same comments apply. As stated for pressure observations, the large increase in the number of monitored wind observations, seen in report number nineteen, was largely due to the inclusion of all 'automatic ship' data, not just one report in each six hour period.

Histograms of O-B differences for ship observations of wind speed are presented in Figures 2d, 2e and 2f and of wind direction in Figures 2g, 2h and 2i. As with observations of pressure, those wind observations that fail the quality-control checks differ most from background, some by as much as 50 ms^{-1}, and they make a large contribution to the variance of O-B. The distributions of O-B wind speed and direction for the remaining 93 % of the observations are nearly Gaussian. There is a speed bias of 1.1 ms^{-1} relative to background, with a direction bias of just –1.5°.

Figures 6 and 7 show the geographical distributions over the six-month period of the mean and standard deviation of O-B for ship observations of wind speed that pass the quality-control checks. The numbers of wind reports used to generate these statistics are presented in Figure 8. The standard deviation of O-B wind speed is typically 2.5 to 4 ms^{-1} in middle latitudes and 2 to 3 ms^{-1} in the tropics. The bias is generally around +1 ms^{-1}, but exceeds +2 ms^{-1} in a few places. Similar distributions of the mean and standard deviation of O-B wind direction are shown in Figures 9 and 10. Only reports where both the observed and background wind speeds are greater than 5ms^{-1} were used to obtain these values. The magnitude of the bias is less than 10 degrees in most places. The standard deviation is generally between 20 and 30 degrees globally but in some data-sparse areas, it is as large as 40 or 50 degrees. The numbers of reports of wind direction used to generate these statistics are presented in Figure 11.

Figures 6-11 provide reference values against which to compare the O-B characteristics for different marine observing platforms. Table 5 contains a list of those ships and drifting buoys considered to have produced suspect observations of wind speed in the period July to December 2002, and in Table 7 a similar list is provided for wind direction. Values are given for the number of observations of wind received at the Met Office, the number of observations having a vector difference from background of more than 25ms^{-1} (gross errors), and the mean and standard deviation of O-B. Time-series of O-B are given at the end of the report for each listed identifier. In the majority of the cases of suspect speed observations, a constant bias is clearly evident. Errors in observations of direction are more random in nature. Tables 6 and 8 contain statistics for platforms reporting in ship code which are not included in Tables 5 and 7 but that were listed in the previous report, for wind speed and direction respectively. Time-series plots for these identifiers are not included in this report.

3.3 Sea-surface temperature

In the six-month period July to December 2002, a total of 2297768 observations of SST were monitored at the Met Office, from 3567 manual ships, 921 drifting buoys and 363 automatic ships. Of the total, 417899 were from manual ships, 1355728 from drifting buoys and 524121 from automatic ships. (More detail is given in Table 1.) For the same reasons as stated for pressure observations, it appears that many identifiers report only once during the six-month period. The number of identifiers has decreased in the same way as for pressure and the same comments apply. Despite there being a relatively small number of drifting buoys, they contribute a substantial percentage of the total number of SST observations received. This is due to the frequency of buoy observations; hourly in many cases, with ships tending to report only at the main synoptic hours.

Histograms of O-B differences for all ship SST reports are shown in Figures 2j, 2k and 2l. As with observations of pressure and wind, those SST observations that fail the quality-control checks differ most from background and make a large contribution to the variance of O-B. The distribution of O-B SST for the remaining 87 % of the observations is nearly Gaussian. There is a bias of 0.1 °C relative to background.

Figures 12 and 13 show the geographical distributions over the three-month period of the mean and standard deviation of O-B for ship observations that pass the quality control checks. The numbers of reports used to generate these statistics are presented in Figure 14. The bias is generally around 0.5°C and the standard deviation 1 to 2°C. Particular exceptions to this tend to show up where the number of observations is relatively low.

Table 9 contains a list of the ships and drifting buoys considered to have produced suspect observations over the 6-month period. The comments given in each case provide an indication of the main reason for the station to be listed as suspect; time-series charts have also been plotted for SST and are included at the end of the report. The majority of the identifiers appearing on the list do so because of bias. Table 10 gives details of the performance over the latest 6-month period of ships which were considered suspect in the previous period but which do not appear in Table 9.

4. SUMMARY

158 marine observing platforms are listed as producing suspect observations of pressure over the period July to December 2002, 150 as producing suspect wind observations and 171 as producing suspect SST observations. The first report issued by RSMC Bracknell, for the period January to June 1989, listed 150 marine platforms producing suspect observations of pressure. With the selection criteria remaining unchanged, an initial reduction in the number of platforms listed as suspect was followed by a series of reports listing similar numbers of suspects. Compared with the previous report (27) this report shows an increase of 34 % in the wind direction suspects but pressure, speed and SST have changed by under 5%. When considered alongside the fluctuations in numbers of platforms reporting and observations monitored, this trend does not, it seems, represent decreasing observation quality. Over the same period, there have been increasing numbers of wind observing platforms listed as suspect, although this also appears not to be a worrying trend.

The most common characteristic in the case of identifiers listed as producing suspect pressure observations is bias in the reported pressure, sometimes remaining constant for many months. In the case of wind suspects, the most common reason for listing a platform is a bias in the reported wind speed, while a few show large standard deviations or biases in wind direction. For sea-surface temperature observations, bias is again the most common cause of error.

The selection criteria have been set sufficiently stringent to ensure that the platforms listed are only those for which there is a high degree of confidence in their reports having errors. There are many others, not listed here, for which there must be considerable doubt over the quality of the observations. A wider range of monitoring results is available from the Met Office on request.

TABLE 1: FREQUENCY DISTRIBUTION OF THE NUMBER OF REPORTS OF PRESSURE, WIND AND SEA SURFACE TEMPERATURE FROM INDIVIDUAL IDENTIFIERS AVAILABLE FOR MONITORING AT BRACKNELL, JULY TO DECEMBER 2002.

Number of reports	Number of manual ships reporting			Number of drifting buoys reporting			Number of automatic ships reporting		
	Press.	Wind	SST*	Press.	Wind	SST*	Press.	Wind	SST*
1	1275	1310	990	66	45	37	104	111	78
2-10	570	589	497	13	14	8	33	34	25
11-20	251	253	222	5	3	9	5	6	5
21-40	341	344	311	11	3	10	7	8	4
41-100	644	670	569	9	3	19	8	10	6
101-200	583	595	478	18	2	35	13	18	10
201-500	506	511	383	43	1	111	27	44	25
501-1000	68	68	60	35	6	160	16	36	49
1001-1500	23	23	15	40	6	216	30	32	37
1500+	50	33	42	264	42	316	137	137	124
Total	4311	4396	3567	504	125	921	380	436	363
(Report 27)	(6117)	(6334)	(4798)	(679)	(246)	(1062)	(755)	(800)	(585)

* numbers are for automatic (fixed) buoys only

TABLE 2: NUMBER OF OBSERVATIONS OF PRESSURE RECEIVED AT BRACKNELL ON THE GTS FOR EACH OF THE SIX-MONTH PERIODS COVERED BY THE WMO REPORTS ON THE QUALITY OF MARINE OBSERVATIONS.

Period	WMO report number	Number of Observations			
		Manual ships	Drifting buoys	Automatic ships	Total
Jan - Jun 1989	1	424087	174971	40082	639140
Jul - Dec 1989	2	421315	151972	58016	631303
Jan - Jun 1990	3	424335	177927	63847	666109
Jul - Dec 1990	4	412430	205488	71146	689064
Jan - Jun 1991	5	364760	177069	64401	606230
Jul - Dec 1991	6	348710	148604	68456	565770
Jan - Jun 1992	7	332443	216872	73893	623208
Jul - Dec 1992	8	336958	247873	80862	665693
Jan - Jun 1993	9	340293	288208	77317	705818
Jul - Dec 1993	10	348082	316261	88650	752993
Jan - Jun 1994	11	334134	279963	111928	726025
Jul - Dec 1994	12	383760	305618	142468	831846
Jan - Jun 1995	13	369781	407111	124537	901429
Jul - Dec 1995	14	394016	528938	138653	1061607
Jan - Jun 1996	15	430162	566035	122909	1119106
Jul - Dec 1996	16	477928	621869	133221	1233018
Jan - Jun 1997	17	446530	623835	122178	1192543
Jul - Dec 1997	18	453399	684292	140227	1277918
Jan - Jun 1998	19	426622	700743	423217	1550582
Jul - Dec 1998	20	443548	700239	497313	1641100
Jan - Jun 1999	21	432506	697983	466311	1596800
Jul - Dec 1999	22	448996	771624	500070	1720690
Jan - Jun 2000	23	443023	772510	455799	1671332
Jul - Dec 2000	24	477828	829588	512338	1819754
Jan - Jun 2001	25	458345	784686	465887	1708918
Jul - Dec 2001	26	473887	914744	554002	1942633
Jan - Jun 2002	27	443876	1111699	517200	2072775
Jul - Dec 2002	28	544433	952313	595959	2092705

TABLE 3: LIST OF MARINE OBSERVING PLATFORMS REPORTING SUSPECT PRESSURE OBSERVATIONS OVER THE PERIOD JULY TO DECEMBER 2002.

Column	1	Call sign or identifier.
Column	2	Number of pressure observations available for monitoring over the 6-month period, excluding duplicates, but including any observations with gross errors.
Column	3	Number of pressure observations differing by more than 15 hPa from background (gross error).
Column	4	Standard deviation of observation-minus-background differences excluding cases of gross error.
Column	5	Mean of observation-minus-background differences (bias) excluding cases of gross error.
Columns	6-10	Number of times observing platform has appeared on suspect lists. B=Bracknell, E=ECMWF, F=MétéoFrance, T=Tokyo, W=Washington.
Column	11	Comments on quality of pressure observations.

Notes:
1. Units are hPa.
2. Observing platforms marked with an asterisk were listed in the previous report January to June 2002)

Table 3a: Platforms reporting in BUOY code

*i): Platforms **non-operational** at the end of the reporting period*

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
13501	73	73	---	---	1	1	0	0	1	GE
13504	138	138	---	---	1	1	0	0	1	GE
13508	60	60	---	---	1	1	0	0	1	GE
15910	489	79	5.4	4.6	1	0	0	0	0	Bias and GE
16527	4582	0	3.5	0.1	0	0	0	0	0	Bias and SD
16951	2865	5	2.6	2.3	2	1	1	2	2	Bias at end of reports
17515	794	23	3.1	2.9	1	1	0	1	1	Bias and GE
17903	1365	44	4.5	6.3	1	1	1	1	1	Bias, SD and GE
21530	2425	49	1.7	1.6	1	1	0	1	1	Bias, SD, GE at end of period
21534	1712	1711	0.0	1.9	3	3	3	0	3	GE
21596	541	10	0.9	0.0	0	0	0	0	0	GE at end of reports
23562	1473	848	0.6	0.9	3	3	3	0	3	GE from August
23638	1892	149	1.5	1.4	1	1	1	0	1	Bias, SD, GE at end of reports
23641	3171	91	2.5	1.1	0	1	0	1	1	Bias, SD, GE at end of period
23648	2908	82	1.1	0.6	1	1	0	1	1	Bias and GE at end of reports

Continued →

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
23949	407	101	3.4	-0.2	1	1	1	1	1	Bias and GE
41525	75	75	---	---	1	1	0	0	1	GE
41536	2277	566	1.7	1.2	2	2	1	1	2	GE from November
41665	1485	10	1.2	11.0	2	2	2	2	2	Bias
44504	2419	497	4.6	-0.8	3	3	2	3	3	Bias, SD, GE at end of reports
44511	1256	121	4.1	-1.3	1	1	1	1	1	Bias, SD and GE
44517	1055	36	1.9	-0.5	0	0	0	0	0	Bias, SD, GE at end of reports
44624	3333	22	2.5	-0.5	1	1	0	0	1	Bias, SD, GE at end of reports
44743	3498	29	1.5	-0.3	0	0	0	0	0	Bias and GE at end of period
46637	1720	36	1.6	-0.3	0	0	0	0	0	Bias and GE
48574	3935	1147	4.9	-0.3	4	4	3	4	4	Bias, SD and GE
48590	435	168	5.1	-5.6	1	1	1	1	1	Bias and GE
55906	188	18	3.8	2.4	0	0	0	0	0	Bias and GE
55907	833	0	3.0	0.8	0	0	0	0	0	Bias
56554	3001	0	1.8	1.0	0	0	0	0	0	Bias at end of reports
61664	473	0	0.6	-5.9	3	3	3	3	3	Bias
62697	1208	224	3.6	0.8	1	1	1	1	1	Bias and GE at end of reports
64606	72	25	3.5	2.7	1	1	1	0	1	GE
71543	506	42	3.1	1.4	2	2	2	0	2	Bias and GE from September
71566	493	214	6.7	-1.8	1	1	1	1	1	Bias, SD and GE
74519	309	128	7.9	0.8	1	1	1	1	1	Bias, SD and GE

*ii): Platforms **operational** at the end of the reporting period*

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
15921	1566	13	2.2	1.5	0	0	0	0	0	Bias, SD, GE at end of period
16943	3095	9	3.0	2.4	1	1	1	1	1	Bias
21535	3289	0	1.3	-1.9	0	0	0	0	0	Bias at end of period
25571	1227	487	6.9	0.0	6	6	5	5	6	Bias, SD and GE
44730	4774	1	0.9	-0.1	0	0	0	0	0	Bias at end of period
46561	1165	0	1.0	-2.8	0	0	0	0	0	Bias until September
53561	3507	1	1.9	1.6	0	0	0	1	0	Bias up to September
61532	345	241	10.3	8.6	2	2	1	1	2	Bias and GE
71541	104	24	1.7	0.1	0	0	0	0	1	GE from November

Table 3b: Platforms reporting in SHIP code

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
BOAB *	115	1	2.7	-3.5	1	2	1	1	1	Bias at start of period
CGDS *	1350	22	3.0	-0.3	0	0	0	0	0	Bias and GE
CGDX	1402	0	1.9	1.2	0	0	0	0	0	Bias from October
CG2350 *	1107	69	2.2	0.1	0	0	0	0	0	Bias at start of period and GE
CG2522 *	1858	108	2.4	-1.8	1	0	1	1	1	Bias and GE
CG2556	111	16	1.4	-10.1	3	0	3	0	5	Bias and GE
CG2960 *	1252	21	1.7	0.1	0	0	0	0	0	Bias in October
CG2992 *	1240	674	3.7	-8.3	3	0	2	3	3	Bias and GE
C6FN4	76	0	5.7	-5.2	1	0	0	0	1	Bias and SD up to September
C6KD6 *	137	0	1.6	4.3	2	2	1	2	2	Bias
C6KE3	61	0	0.9	-3.6	0	0	0	0	0	Bias
C6LU3 *	288	2	3.0	1.9	1	1	1	1	1	Bias from October
C6MX4	218	0	1.5	-2.8	0	0	0	0	0	Bias
C6QK *	131	0	3.1	3.8	1	1	1	0	1	Bias
DEOF *	93	39	6.2	-8.1	3	1	3	0	4	Bias and SD
D5XH	105	1	2.9	-2.8	1	1	0	0	0	Bias at end of period
ELWX5 *	2532	24	1.9	2.2	0	0	0	0	0	Bias and SD at start of period
ELXB5	76	0	0.9	4.1	0	0	0	0	0	Bias
ELYP8 *	167	0	3.6	0.4	1	1	1	1	1	SD at start of period
ELZF7 *	247	0	3.8	1.5	2	2	2	2	2	Bias at start of period
ELZW3	95	0	3.6	2.6	1	1	1	0	1	Bias at end of reports
HODM	47	0	3.8	8.1	2	2	1	1	2	Bias
H9LA *	86	1	1.3	-3.1	0	0	0	0	0	Bias
KCDK	77	2	3.7	-3.7	0	0	0	0	0	Bias
KMJL *	142	1	1.9	-3.8	1	0	1	0	1	Bias
KS000 *	804	0	4.3	8.4	5	5	4	5	5	Bias up to November
KS002 *	257	0	1.3	3.9	2	1	1	0	2	Bias
KS003 *	52	0	0.6	5.3	1	1	0	1	1	Bias
KS004	589	411	0.6	0.8	2	2	1	2	2	GE up to November
KS006 *	412	0	1.5	6.7	4	4	3	3	4	Bias up to November
KS010 *	329	0	0.7	4.2	3	2	3	2	3	Bias
KS012 *	304	0	1.1	5.7	2	2	2	2	2	Bias
KS014	517	4	3.8	1.8	0	1	0	0	0	Bias at start and end of period
KS025	814	0	4.2	6.4	4	4	3	4	4	BIAS up to November
LADQ4	118	1	2.1	-3.8	2	2	0	1	1	Bias
LAOL5	66	0	1.5	4.7	2	1	1	2	2	Bias
LAVV4	53	0	2.7	2.6	1	0	0	0	0	Bias at end of period
MVLA7 *	208	0	2.1	3.2	2	1	1	0	3	Bias
OUSE6 *	90	1	1.0	-5.2	3	0	2	0	0	Bias
OWDD *	364	2	2.3	-3.0	3	1	2	1	1	Bias up to September

Continued →

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
OZNF2	65	0	2.2	-2.4	0	0	0	0	0	Bias
OZZB2	87	1	2.3	3.1	0	0	0	0	0	Bias
PDGS	66	0	2.0	4.4	1	0	0	0	0	Bias
PFBE *	87	0	2.2	-4.6	1	1	1	1	1	Bias
PJKS	109	0	4.7	-2.5	1	1	1	0	1	SD and Bias at end of period
P3NK5	55	2	2.9	6.8	1	1	1	1	1	Bias
P3YS5 *	306	0	1.7	3.8	2	2	2	2	3	Bias
SGIX	285	1	1.6	-3.9	4	4	1	2	2	Bias
S6DH	59	0	1.3	5.6	0	0	0	0	0	Bias
UAMR	58	22	4.2	3.4	1	1	0	1	1	GE at start of period
UANF *	74	0	2.4	-2.9	0	0	0	0	0	Bias
UBAU *	62	0	1.0	-4.6	1	1	1	1	0	Bias
UCAC *	77	1	1.4	9.4	1	1	1	0	1	Bias
UCJB *	122	1	1.4	-4.5	4	3	3	1	2	Bias
UCJL	255	1	1.7	3.8	2	2	2	0	3	Bias
UCSS	53	20	1.7	-0.7	1	0	0	0	1	GE at start of period
UCTA	178	1	3.1	-0.5	0	0	0	0	0	Bias at end of period
UCTS *	59	0	2.1	-4.3	1	1	0	1	0	Bias
UCUD	150	5	3.8	-2.8	0	2	0	1	1	Bias and SD at end of period
UCUE *	81	0	3.0	-2.7	2	0	0	0	0	Bias at start of period
UDUR *	64	42	1.0	13.7	2	2	0	2	2	Bias
UFAA *	326	0	5.2	4.5	3	4	3	4	4	Bias up to November
UFNO *	91	1	4.3	4.6	1	1	1	0	1	Bias up to October
UGGA *	226	0	1.8	-3.0	0	1	0	0	1	Bias
UGTY	115	0	2.3	3.7	1	0	0	0	1	Bias
UHJU	65	6	4.7	1.4	1	1	0	1	0	GE and SD at end of period
UHLE *	132	2	3.7	-5.7	2	2	2	0	2	Bias
UHRT	94	11	1.8	0.8	0	0	0	0	0	GE at end of period
UIAG *	103	16	4.9	-3.9	1	1	1	0	2	Bias and GE
UIAI	66	1	3.4	-3.6	0	0	0	0	0	Bias
VCLX	91	69	4.4	-6.5	3	2	3	0	4	Bias
VCPX	236	2	2.5	-2.6	0	3	0	1	0	Bias
VCQM	131	4	2.7	3.6	1	0	1	0	2	Bias
VCQN	70	27	3.8	-3.8	0	0	0	0	0	Bias
VCRT *	44	0	1.6	-4.5	1	1	1	0	1	Bias
VDRC	76	52	4.6	-2.6	0	0	0	0	0	Bias
VGDT	47	0	1.7	-3.4	0	0	0	0	0	Bias
VGFQ *	213	8	1.9	-2.2	1	0	0	0	1	GE in December
VJT6198	64	1	2.1	-6.8	1	0	1	1	1	Bias
VRUR	119	0	3.3	0.6	0	0	0	0	0	SD at end of period

Continued →

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
VTXG	221	1	2.2	2.3	1	1	1	1	1	Bias from October
VVKT	53	0	2.4	-5.2	1	1	0	0	0	Bias
V7BX2	169	1	1.3	-3.5	1	0	0	0	0	Bias
V7CY9	289	3	2.7	-6.1	4	4	3	4	4	Bias
WCY3172	45	0	3.4	3.4	0	0	0	0	0	Bias
WCY7054	44	0	2.2	5.7	1	0	1	1	1	Bias
WCZ8589	84	2	5.7	0.5	0	0	0	0	0	SD
WE6970	114	2	5.0	7.0	2	0	2	0	2	Bias
WYL4978	77	1	3.7	4.0	1	0	0	0	1	Bias at end of period
XPYM *	310	0	1.2	3.6	1	1	1	0	2	Bias
XXAN *	209	0	2.8	2.1	0	2	1	0	0	up to October
YCTJ *	275	39	3.1	1.5	1	1	1	1	1	Bias and GE in July
ZIZP9	104	0	1.2	-3.8	0	0	0	0	0	Bias
ZNTL4	236	0	1.9	2.6	0	0	0	0	0	Bias
210	57	0	1.4	-5.5	1	1	0	1	1	Bias
3FAP5	124	3	4.6	-1.7	1	0	1	0	0	Bias and SD from October
3FGN3	43	1	5.2	-0.9	0	0	0	0	0	SD
3FKD6 *	374	0	1.2	-3.3	0	0	0	0	0	Bias
3FOC5	108	0	2.3	5.6	3	0	2	0	3	Bias
31057	6701	215	4.2	2.3	3	3	2	3	3	Bias, SD and GE from October
41001	4293	0	1.0	0.0	0	0	0	0	0	SD at end of period
42043	263	0	0.6	4.0	1	0	1	1	1	Bias
42044	332	0	4.7	2.0	0	0	0	0	0	Bias and SD
48092 *	993	505	7.3	-2.4	5	5	4	3	5	Bias, SD and GE
62138	553	4	1.9	-0.5	0	0	0	0	0	Bias at end of period
62143	204	1	2.9	1.7	1	0	0	0	1	Bias
62301	4257	223	3.5	0.5	1	1	1	1	1	Bias and GE from November
63108	843	1	5.2	3.6	3	3	2	3	3	Bias September to November
8PNI *	177	1	2.6	-4.1	3	5	3	0	4	Bias
9HER7	80	1	3.2	6.7	2	2	0	0	2	Bias
9MCR3	42	1	3.3	3.8	0	0	0	0	0	Bias
9VHZ2 *	74	0	1.3	-2.8	0	0	0	0	0	Bias
9VVS	97	0	1.6	4.1	1	0	1	0	1	Bias

TABLE 4: LIST OF PLATFORMS REPORTING IN SHIP CODE NOT APPEARING IN TABLE 3 BUT LISTED AS SUSPECT OVER THE PERIOD JANUARY TO JUNE 2002.

Column	1	Call sign or identifier.
Column	2	Number of pressure observations available for monitoring over the 6-month period, excluding duplicates, but including any observations with gross errors.
Column	3	Number of pressure observations differing by more than 15 hPa from background (gross error).
Column	4	Standard deviation of observation-minus-background differences excluding cases of gross error.
Column	5	Mean of observation-minus-background differences (bias) excluding cases of gross error.
Column	6	Comments on quality of pressure observations.
Notes:	1.	Units are hPa

Identifier	N Obs.	NGE	SD	Bias	Comments
C6FE5	132	0	1.8	-1.4	Bias reduced
C6FE6	245	1	1.9	2.8	Bias reduced
C6FM7	53	0	1.1	-1.0	Bias reduced
C6FM8	22	0	1.2	2.4	Less than 40 reports
C6KY3	0	---	---	---	No reports
C6QY4	234	1	1.1	-0.2	Bias reduced
DPCK	242	0	1.6	-0.7	Bias reduced
DYZM	98	0	3.1	-0.9	SD reduced
ELTP9	245	0	1.0	1.6	Bias reduced
ELWQ9	48	0	1.9	2.5	Bias reduced
ELXZ7	20	0	0.9	-4.0	Less than 40 reports
ELYL9	101	2	3.1	-0.5	SD reduced
GXEW	0	---	---	---	No reports
H9PD	7	0	1.4	-2.1	Less than 40 reports
IZEZ	17	0	2.3	-5.0	Less than 40 reports
JJKV	2	0	0.9	-2.4	Less than 40 reports
KRLZ	258	0	2.5	-0.7	Bias reduced
KS013	14	0	0.4	4.8	Less than 40 reports
LAOW5	17	0	0.5	2.4	Less than 40 reports
LAXS2	97	0	2.0	0.4	Bias and SD reduced
MTDM5	54	0	2.1	2.6	Bias reduced
OENC	0	---	---	---	No reports
OZOK2	59	0	2.6	-0.5	SD reduced
PECF	286	1	1.9	-1.4	Bias reduced
PFJH	47	0	0.8	-0.4	SD reduced

Continued →

Identifier	N Obs.	NGE	SD	Bias	Comments
P3CE9	88	1	3.8	-0.5	Bias and SD reduced
P3FZ6	14	2	0.5	6.5	Less than 40 reports
P3YR5	0	---	---	---	No reports
SHIPBB	71	0	2.5	-0.5	SD reduced
SIWN	71	0	1.5	-0.3	Bias reduced
UAIS	0	---	---	---	No reports
UAMX	0	---	---	---	No reports
UBDN	5	0	1.7	2.1	Less than 40 reports
UBDO	24	3	3.6	-0.1	Less than 40 reports
UDYG	0	---	---	---	No reports
UFEQ	47	1	3.4	-1.4	GE reduced
UGWB	48	0	2.0	0.9	Bias reduced
UITP	34	0	4.7	2.3	Less than 40 reports
VGDX	234	1	0.9	-1.0	Bias reduced
VGJC	25	0	3.8	0.3	Less than 40 reports
VNW4455	0	---	---	---	No reports
VOWN	36	15	6.2	-1.5	Less than 40 reports
VRVI2	0	---	---	---	No reports
VVKV	16	0	0.9	0.3	Less than 40 reports
VVMA	85	0	2.5	0.2	Bias reduced
VVML	17	0	2.5	2.0	Less than 40 reports
VYNG	40	37	3.9	-2.8	Less than 40 reports
V2PR	0	---	---	---	No reports
V7AP6	160	1	1.6	-2.3	Bias reduced
V7AP7	273	1	1.9	-1.3	Bias and GE reduced
V7BX3	24	0	1.2	-4.4	Less than 40 reports
WAZ9548	63	2	3.9	2.8	Bias reduced
WCV7620	92	0	2.3	1.8	Bias reduced
WCY2920	431	1	3.0	0.1	Bias reduced
WDCJ	181	0	1.7	2.0	Bias and SD reduced
WRYE	285	2	1.8	-1.9	Bias reduced
ZQVN3	0	---	---	---	No reports
25552	0	---	---	---	No reports
3FBJ7	60	0	1.4	-2.7	Bias reduced
31974	0	---	---	---	No reports
44513	0	---	---	---	No reports
47556	0	---	---	---	No reports
48525	0	---	---	---	No reports
52644	0	---	---	---	No reports
52645	0	---	---	---	No reports

Continued →

Identifier	N Obs.	NGE	SD	Bias	Comments
54903	0	---	---	---	No reports
55912	0	---	---	---	No reports
61527	0	---	---	---	No reports
61654	0	---	---	---	No reports
62142	1343	0	0.5	0.0	Bias, SD and GE reduced
62151	35	0	0.6	0.5	Less than 40 reports
62162	3977	0	0.6	0.1	Bias reduced
64560	0	---	---	---	No reports
65595	0	---	---	---	No reports
73509	0	---	---	---	No reports
9MBW	95	0	2.3	1.1	Bias reduced

TABLE 5: LIST OF MARINE OBSERVING PLATFORMS REPORTING SUSPECT WIND SPEED OBSERVATIONS OVER THE PERIOD JULY TO DECEMBER 2002.

Column	1	Call sign or identifier.
Column	2	Number of wind speed observations available for monitoring over the 6-month period, excluding duplicates, but including any observations with gross errors.
Column	3	Number of wind observations with vector difference from background of more than 25ms $^{-1}$ (gross error).
Column	4	Standard deviation of observation-minus-background differences excluding cases of gross error.
Column	5	Mean of observation-minus-background differences (bias) excluding cases of gross error.
Column	6-10	Number of times observing platform has appeared on suspect lists. B=Bracknell, E=ECMWF, F=MétéoFrance, T=Tokyo, W=Washington.
Column	11	Comments on quality of wind speed observations.

Notes:
1. Units are ms^{-1}
2. Observing platforms marked with an asterisk were listed in the previous report (January to June 2002)

Table 5a: Platforms reporting in BUOY code

*i): Platforms **non-operational** at the end of the reporting period*

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
41645	1726	0	2.3	-3.4	0	0	0	0	0	Bias
41652	2720	112	4.8	3.1	1	0	1	0	0	Bias, SD, GE at end of reports
41667	1301	31	3.4	-0.8	0	0	0	0	0	GE
52513	1419	15	3.2	-1.9	0	0	0	0	0	Bias from November
52529	2416	19	3.3	-3.8	1	0	0	1	1	Bias
52537	3735	0	3.3	-5.1	3	3	1	3	3	Bias
52643	3086	127	4.8	1.1	0	0	0	0	0	Bias and SD at end of period

*ii): Platforms **operational** at the end of the reporting period*

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
23924	1342	70	6.0	6.4	3	3	3	0	3	Bias up to September
52533	2672	0	2.5	-2.5	0	0	1	2	1	Bias at end of period

Table 5b: Platforms reporting in SHIP code

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
A8AM7	50	0	4.7	9.8	1	1	0	1	1	Bias
CFD6824	61	0	4.0	5.2	0	0	0	0	0	Bias
CYLY *	64	0	4.2	5.4	0	0	1	0	1	Bias at end of period
C6SN2 *	270	2	4.4	1.1	1	1	0	1	1	Bias and SD from November
C6T2063	98	0	2.7	3.4	1	0	1	0	1	Bias
DANM	242	6	4.4	3.6	1	1	0	0	1	Bias
DBBI *	3292	2	2.4	-2.0	0	0	0	0	0	Bias in October
DEHZ	78	3	4.2	4.6	0	0	0	0	0	Bias
ELRR4 *	258	0	3.1	3.8	1	1	1	1	1	Bias
ELWU8	137	3	5.7	3.7	0	0	1	0	0	SD
ELYB2 *	112	2	3.1	4.8	3	1	1	0	1	Bias
ELYL9	101	0	4.6	3.9	0	0	0	0	0	Bias
ELZB9	159	2	4.5	3.8	0	0	0	0	0	Bias
GYYP	1232	21	4.0	2.7	0	1	2	1	0	Bias, SD, GE at end of period
HP6038 *	1381	1	3.1	4.0	1	0	0	0	0	Bias
H9RS	229	1	3.4	3.2	0	0	0	0	0	Bias at end of period
KRLZ *	258	1	3.2	1.2	0	0	0	0	0	Bias at end of period
KS000 *	805	0	2.5	-4.1	1	1	1	1	2	Bias
KS002 *	256	0	2.0	-4.9	2	1	1	1	1	Bias
KS004	589	0	2.2	-5.0	2	2	1	1	3	Bias
KS005	660	0	2.2	-3.9	2	2	1	2	2	Bias from November
KS006 *	411	0	1.8	-4.9	2	2	1	2	2	Bias
KS010	329	0	1.7	-4.6	2	0	0	0	0	Bias
KS025	814	0	2.7	-4.5	4	1	1	1	2	Bias
LAGB5	125	4	3.6	2.7	0	0	0	0	0	Bias at end of period
MVXQ8	51	1	4.4	5.2	0	1	1	0	1	Bias
OUSE6 *	91	2	5.5	10.7	3	0	2	0	0	Bias
OWDD *	368	3	4.0	2.7	0	0	0	0	0	Bias and SD in November
OWVI2 *	188	1	5.0	4.2	1	1	1	1	0	Bias and SD
OYVQ2	252	6	4.3	3.2	2	2	0	0	2	Bias
OZQS2	112	1	5.6	11.6	2	1	1	0	1	Bias and SD
PJVM	661	1	3.1	3.2	0	0	0	0	0	Bias
TSMU *	288	1	4.0	4.2	0	0	1	0	0	Bias
VCLM *	2304	5	4.5	-0.6	0	0	0	0	0	Bias and SD
VCPZ	83	1	4.5	4.7	0	0	0	0	1	Bias
VGLZ *	198	1	3.7	5.8	0	0	0	0	1	Bias
VLKG *	175	5	5.7	1.3	0	2	1	0	1	Bias and SD
VLST *	449	0	3.2	4.9	0	0	2	0	0	Bias
VNSZ	916	0	3.4	4.7	0	0	3	1	0	Bias
V2AQ3	92	2	6.0	4.0	0	0	1	0	0	Bias

Continued →

Identifier		N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
A8AM7		50	0	4.7	9.8	1	1	0	1	1	Bias
V2AZ5		113	0	3.4	3.5	1	1	1	0	1	Bias at end of period
V2FN	*	50	4	4.4	14.3	1	2	0	0	1	Bias
V7AY2		282	1	3.9	2.0	1	1	0	1	0	Bias from October
ZCDE3		79	0	5.2	2.9	0	0	0	0	0	SD at end of period
3ETX6		142	7	5.0	4.8	1	1	1	1	0	Bias
3FAP5		124	0	4.5	-1.2	0	0	0	0	0	Bias from October
3FPK7		1021	0	2.6	3.4	0	0	0	0	0	Bias at end of period
3FZM		203	0	3.6	-5.6	3	3	2	3	3	Bias
44013		4303	0	2.1	1.8	0	0	0	0	0	Bias at end of period
44029		1837	0	2.3	1.3	0	0	0	0	0	Bias at end of reports
44034		2430	0	3.1	1.3	0	0	0	0	0	Bias at end of period
44139		2790	0	2.4	-0.8	0	0	0	0	0	Bias and SD at end of period
44142		4312	0	1.9	-0.3	0	0	0	0	0	Bias and SD at end of period
44145	*	1396	2	4.0	4.9	3	4	2	3	1	Bias
45138		3513	0	2.3	0.4	0	0	0	0	0	Bias and SD at end of period
46131	*	4304	0	3.0	2.7	0	0	0	0	0	Bias
46146		3596	0	2.8	3.7	0	0	0	0	0	Bias from November
46181		4297	0	2.9	2.1	0	2	0	0	0	Bias from November
62147		577	1	3.0	1.9	0	0	0	0	0	Bias at end of period
64045	*	4111	4	2.4	-2.9	0	0	1	1	1	Bias up to September
9MET		85	1	5.6	3.9	1	1	1	1	0	Bias and SD
9WCY2		128	2	5.9	6.1	2	2	1	2	1	Bias and SD

TABLE 6: LIST OF PLATFORMS REPORTING IN SHIP CODE NOT APPEARING IN TABLE 5 BUT LISTED AS SUSPECT OVER THE PERIOD JANUARY TO JUNE 2002.

Column	1	Call sign or identifier.
Column	2	Number of wind speed observations available for monitoring over the 6-month period, excluding duplicates, but including any observations with gross errors.
Column	3	Number of wind observations with vector difference from background of more than 25ms^{-1} (gross error).
Column	4	Standard deviation of observation-minus-background differences excluding cases of gross error.
Column	5	Mean of observation-minus-background differences (bias) excluding cases of gross error.
Column	6	Comments on quality of wind speed observations.
Notes:	1.	Units are ms^{-1}

A3CW4	24	0	2.5	-5.8	Less than 40 reports
A8AA6	92	0	3.6	1.5	Bias and SD reduced
C6KU8	4	0	1.1	1.1	Less than 40 reports
C6NI3	183	0	3.1	2.6	Bias reduced
C6OM8	92	0	2.6	1.4	Bias and SD reduced
C6RO6	0	---	---	---	No reports
DHDH	159	0	4.1	3.1	Bias reduced
DZSE	233	0	3.9	2.0	Bias reduced
ELBX4	282	1	2.8	1.6	Bias reduced
ELNG6	2	0	2.5	3.0	Less than 40 reports
ELXT8	142	2	4.0	3.4	Bias and SD reduced
FNEH	0	---	---	---	No reports
FNOU	135	0	3.0	2.1	Bias and SD reduced
KS013	14	0	1.4	-7.1	Less than 40 reports
LAOW5	17	0	2.6	1.5	Less than 40 reports
LAVX	0	---	---	---	No reports
MVEP4	28	0	4.3	2.3	Less than 40 reports
PPSO	182	0	4.6	3.7	Bias and SD reduced
SXYY	92	0	2.3	1.5	Bias and SD reduced
VCTJ	5	0	4.7	2.3	Less than 40 reports
VDWC	94	0	3.2	4.5	Bias reduced
V2FA2	29	0	2.0	4.9	Less than 40 reports
V7AT9	44	1	3.1	3.4	Bias and SD reduced
V7DR6	36	0	3.5	2.2	Less than 40 reports
WAQ2746	39	0	3.7	4.2	Less than 40 reports

Continued →

Identifier	N Obs.	NGE	SD	Bias	Comments
Y3CH	3372	5	2.4	-1.4	Bias reduced
ZCAN3	194	41	5.3	3.4	Bias, SD and GE reduced
ZCBW2	384	0	3.3	3.4	Bias reduced
ZQVV8	1	0	0.0	-2.8	Less than 40 reports
21522	0	---	---	---	No reports
3EHN2	15	1	6.9	6.0	Less than 40 reports
3ETH4	96	0	3.3	4.5	Bias reduced
3FJA9	318	0	2.3	2.4	Bias reduced
3FMM6	250	2	5.4	4.9	Bias reduced
41553	0	---	---	---	No reports
41554	0	---	---	---	No reports
41560	0	---	---	---	No reports
41646	0	---	---	---	No reports
52644	0	---	---	---	No reports
61001	4197	2	2.5	1.8	Bias reduced
62112	4011	0	1.7	0.5	Bias reduced

TABLE 7: LIST OF MARINE OBSERVING PLATFORMS PRODUCING SUSPECT WIND DIRECTION OBSERVATIONS OVER THE PERIOD JULY TO DECEMBER 2002 .

Column	1	Call sign or identifier.
Column	2	Number of wind direction observations available for monitoring over the 6-month period, excluding duplicates, but including any observations with gross errors.
Column	3	Number of wind observations with vector difference from background of more than 25ms^{-1} (gross error).
Column	4	Standard deviation of observation-minus-background differences excluding cases of gross error.
Column	5	Mean of observation-minus-background differences (bias) excluding cases of gross error.
Column	6-10	Number of times observing platform has appeared on suspect lists. B=Bracknell, E=ECMWF, F=MétéoFrance, T=Tokyo, W=Washington.
Column	11	Comments on quality of wind direction observations.

Notes:

1. Units are degrees (°).
2. Observing platforms marked § had a significant speed bias at some time within the period and the statistics and their plots refer to direction reports associated with background wind speeds greater than 5 ms^{-1} . If no significant speed bias was present, the statistics and plots refer to direction reports with an observed speed greater than 5 ms^{-1}.
3. Observing platforms marked with an asterisk were listed in the previous report (January to June 2002)

Table 7a: Platforms reporting in BUOY code

*i): Platforms **non-operational** at the end of the reporting period*

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
23594	854	0	56.9	91.1	2	3	2	3	3	Bias and SD
23924 §	1342	68	41.0	78.0	6	6	5	3	6	Bias and SD
41536 §	2242	18	44.7	47.7	5	5	4	4	5	Bias and SD
41667	1301	13	40.4	32.6	3	3	3	2	3	Standard Deviation

*ii): Platforms **operational** at the end of the reporting period*

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
21535	3261	7	34.3	-35.0	6	6	5	1	4	Bias
46701	100	0	37.6	-46.4	1	1	1	1	1	Bias

Table 7b: Platforms reporting in SHIP code

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
A8AA4	50	0	60.2	-14.7	0	0	0	0	0	Standard Deviation
A8AF6 *	171	0	50.0	23.6	0	0	0	0	2	Bias
CGDV	55	0	50.1	-31.3	0	0	0	0	0	Bias
C6KD4 *	272	1	55.5	-12.5	0	0	0	0	0	Bias and SD
C6KD7	266	0	61.4	-15.8	0	0	0	0	0	Standard deviation
C6PW2 *	401	0	56.4	-24.9	0	0	0	0	1	Bias and SD
C6T2063	98	0	48.2	-31.4	0	0	0	0	2	Bias
DANR	70	0	108.6	-17.0	1	2	1	0	2	Standard Deviation
DEBH	96	0	60.1	-17.4	0	0	0	0	0	Standard Deviation
DYZM *	98	0	61.6	-1.8	0	0	0	0	1	Standard Deviation
ELOG5 *	232	2	61.7	-2.1	0	0	0	0	1	Standard Deviation
ELTQ6	321	1	65.1	-3.5	0	0	0	0	2	Standard Deviation
ELTT3 *	63	0	69.9	-10.6	0	0	0	0	0	Standard Deviation
ELVO5	242	1	60.3	-14.5	0	0	0	0	3	Bias and SD
ELXO3	60	1	84.4	-21.8	0	0	0	0	0	Standard Deviation
ELZE2	152	0	66.2	5.4	0	0	0	0	1	Standard Deviation
FNWX *	152	0	40.0	-28.2	0	0	0	0	1	Bias
GHKF	129	0	39.7	45.3	2	0	2	0	1	Bias
KCBH	52	0	63.0	3.5	0	0	0	0	1	Standard Deviation
LANR5	114	0	68.8	-19.9	0	0	0	0	0	Bias and SD
MWRA9	101	0	34.8	-33.8	0	0	0	0	0	Bias
OUGY	97	1	71.1	19.2	0	0	0	0	3	Standard Deviation
OWFU2 *	489	0	47.0	-22.0	0	0	0	0	1	Bias and SD
OZSK2	56	1	75.4	8.9	0	0	0	0	0	Standard Deviation
PCBU	142	0	67.8	-17.1	0	0	0	0	3	Standard Deviation
PFAI	91	0	68.0	-6.1	0	0	0	0	0	Standard Deviation
PJRH *	120	0	66.1	-11.2	0	0	0	0	1	Standard Deviation
P3EK7 §	217	0	67.8	9.1	1	0	0	2	1	Bias and SD
P3ND5	93	0	69.6	2.8	0	0	0	0	0	Standard Deviation
SLCI	85	0	62.9	-6.4	0	0	0	0	0	Standard Deviation
UBSO *	185	0	56.0	2.5	0	0	0	0	2	Standard Deviation
UCTK	96	1	66.6	-11.8	0	0	0	0	1	Standard Deviation
UCUC *	82	0	89.9	14.3	0	1	1	1	1	Standard Deviation
UCUF *	336	2	62.9	3.7	0	0	0	0	2	Standard Deviation
UDDE §	78	0	73.1	-21.4	0	0	0	0	1	Standard Deviation

Continued →

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
UERK	90	0	53.0	32.8	0	0	0	0	1	Bias
UGTV	190	1	72.5	-1.6	0	3	1	1	4	Standard Deviation
UHLE	131	0	75.6	8.3	0	0	0	0	1	Standard Deviation
UIAG	79	1	62.7	-17.5	0	0	0	0	2	Standard Deviation
UIAI	66	0	67.8	-12.7	0	0	0	0	0	Standard Deviation
VCLM *§	1689	4	97.9	7.2	4	4	4	2	6	Bias and SD
VOCJ *	1458	0	41.6	-9.6	0	0	0	0	0	Bias
VRUB2	215	0	62.7	-5.2	0	0	0	0	1	Standard Deviation
VRUR §	119	0	62.2	-3.2	0	0	0	0	0	Standard Deviation
VRUR6 *	188	1	51.8	24.9	0	0	0	0	2	Standard Deviation
VRWS3	111	0	60.6	4.6	0	0	0	0	1	Standard Deviation
VSUA7	109	0	64.3	-19.6	0	0	0	0	1	Standard Deviation
V2AF1 *	52	0	81.6	-22.2	0	0	0	0	0	Standard Deviation
V7CG5 *	123	0	54.9	-28.5	0	0	0	0	0	Standard Deviation
V7DQ8	62	0	81.6	-15.7	0	0	0	0	1	Standard Deviation
WCN4995	111	0	65.7	-6.0	0	0	0	0	1	Standard Deviation
WCZ8589	85	2	63.1	13.2	0	0	0	0	0	Standard Deviation
WDA231 *	91	0	64.8	-6.7	0	0	0	0	0	Standard Deviation
WYH6499	88	0	70.5	-5.3	0	0	0	0	0	Standard Deviation
ZCAN3 *	190	19	51.6	3.9	2	2	0	1	2	Bias, SD and GE
ZCBH3 §	142	2	73.8	-0.2	0	0	0	0	1	Standard Deviation
ZCGH3 *	219	0	51.1	26.6	0	0	0	0	0	Bias
ZIZP9	103	0	60.7	-4.1	0	0	0	0	0	Standard Deviation
23102	177	0	46.0	-38.5	1	2	3	0	4	Bias and SD
3ETX6 §	142	7	65.0	-11.5	0	0	1	2	2	Bias and SD
3FDV6	145	3	68.3	5.9	1	1	1	0	2	Standard Deviation
45141	781	0	57.9	47.7	0	2	1	2	2	Bias and SD
45151	1194	0	33.5	-61.2	0	2	3	0	3	Bias
46025 *	1389	0	41.0	-16.6	0	0	0	0	2	Bias
46053 *	1383	0	35.6	-36.6	0	2	3	2	5	Bias
51028	1378	0	41.4	-31.5	0	0	0	0	0	Bias
51306	125	0	84.8	32.2	1	0	1	0	1	Bias and SD
52007 *	230	0	72.5	-4.1	1	1	1	0	1	Standard Deviation
62131 *	321	0	36.4	35.6	0	0	1	0	3	Bias
62144 *	3493	1	32.6	20.0	0	0	0	0	0	Bias
62414 *	330	1	42.1	-34.8	2	2	0	0	1	Bias
8PNI *	191	0	59.6	5.7	0	0	0	0	2	Bias and SD
9HHW6 §	55	0	60.4	6.3	0	0	0	0	0	Standard Deviation
9HWA5 *	200	1	72.0	5.4	0	0	0	0	1	Standard Deviation
9VHZ3	106	0	75.2	17.0	0	0	0	0	2	Standard Deviation
9VVS	99	0	64.6	18.4	0	1	1	0	2	Bias and SD

TABLE 8: LIST OF PLATFORMS REPORTING IN SHIP CODE NOT APPEARING IN TABLE 7 BUT LISTED AS SUSPECT OVER THE PERIOD JANUARY TO JUNE 2002.

Column	1	Call sign or identifier.
Column	2	Number of wind direction observations available for monitoring over the 6-month period, excluding duplicates, but including any observations with gross errors.
Column	3	Number of wind observations with vector difference from background of more than 25ms^{-1} (gross error).
Column	4	Standard deviation of observation-minus-background differences excluding cases of gross error.
Column	5	Mean of observation-minus-background differences (bias) excluding cases of gross error.
Column	6	Comments on quality of wind direction observations.

Notes: 1. Units are degrees (°)

C6QF7	24	0	60.6	-3.8	Less than 40 reports
C6YC	163	0	41.9	-5.6	Bias and SD reduced
DAMEROM	0	---	---	---	No reports
ELWZ3	199	1	49.7	7.5	SD reduced
ELXM5	150	0	41.8	-3.9	SD reduced
ELXU6	77	0	49.7	-21.2	Bias and SD reduced
KS000	0	---	---	---	No reports
KS004	0	---	---	---	No reports
KS005	0	---	---	---	No reports
KS012	0	---	---	---	No reports
KS013	0	---	---	---	No reports
LAMV4	15	0	28.1	-2.1	Less than 40 reports
OUZW2	81	0	35.7	5.0	SD reduced
SBNX	340	0	54.6	-5.2	Bias and SD
SVSC	0	---	---	---	No reports
UBXS	106	1	34.5	16.5	SD reduced
UFEQ	43	0	20.6	0.7	SD reduced
UGGA	208	2	42.8	-1.3	SD reduced
UINM	75	0	37.4	-1.1	SD reduced
VRUR7	28	0	46.6	-6.6	Less than 40 reports
V7DR6	35	0	59.6	6.9	Less than 40 reports
WBO2511	20	0	39.6	25.5	Less than 40 reports
WBP4766	124	0	55.9	-4.6	Bias reduced
WYL7518	14	0	45.9	-23.6	Less than 40 reports
ZCBB7	143	0	51.0	-9.1	Bias and SD reduced

Continued →

Identifier	N Obs.	NGE	SD	Bias	Comments
ZCBS6	50	0	39.2	-8.1	Bias reduced
ZCBW4	9	0	31.1	4.6	Less than 40 reports
3FGN3	44	0	63.8	12.8	SD reduced
3FOU4	29	0	30.3	-9.6	Less than 40 reports
41553	0	---	---	---	No reports
9WCX9	27	0	27.7	-5.9	Less than 40 reports

TABLE 9: LIST OF MARINE OBSERVING PLATFORMS REPORTING SUSPECT SEA SURFACE TEMPERATURE OBSERVATIONS OVER THE PERIOD JULY TO DECEMBER 2002.

Column	1	Call sign or identifier.
Column	2	Number of sea-surface temperature observations available for monitoring over the six-month period, excluding duplicates, but including any observations with gross errors.
Column	3	Number of sea surface temperature observations differing by more than 10 °C from background (gross error).
Column	4	Standard deviation of observation-minus-background differences excluding cases of gross error.
Column	5	Mean of observation-minus-background differences excluding cases of gross error.
Columns	6-10	Number of times observing platform has appeared on suspect lists. B=Bracknell, E=ECMWF, F=MétéoFrance, T=Tokyo, W=Washington.
Column	11	Comments on quality of sea surface temperature observations.

Notes:

1. Units are °C
2. Observing platforms marked with an asterisk were listed in the previous report (January to June 2002)

Table 9a: Platforms reporting in BUOY code

*i): Platforms **non-operational** at the end of the reporting period*

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
12516	339	95	1.0	0.2	1	-	1	-	1	Gross Errors
13501	75	38	5.8	3.9	1	-	0	-	1	Bias, SD and GE
13504	147	67	5.1	0.5	1	-	0	-	1	Bias, SD and GE
13508	68	20	5.7	1.6	1	-	0	-	1	Bias, SD and GE
14550	61	0	0.1	-9.7	1	-	2	-	2	Bias
16940	808	1	0.8	-3.0	1	-	0	-	0	Bias at end of reports
16942	1310	0	2.3	-2.7	1	-	1	-	1	Bias
17513	5366	1	1.5	-0.3	0	-	0	-	0	Bias at end of period
17563	3920	0	1.1	0.4	0	-	0	-	0	Bias from November
21530	2491	5	1.6	0.6	1	-	0	-	1	Bias at end of reports
21531	1718	10	1.9	-0.1	0	-	1	-	0	Bias at end of reports
21534	2724	141	0.9	-0.2	2	-	1	-	2	GE from November
21640	1809	2	1.3	-0.3	1	-	1	-	0	Bias at end of reports
22903	741	31	1.7	-0.6	1	-	0	-	0	Bias and GE at end of reports
23591	52	52	---	---	1	-	1	-	1	Gross Errors

Continued →

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
23638	1368	6	1.2	-0.2	1	-	1	-	0	Bias and GE at end of reports
23645	1992	41	0.6	0.0	1	-	1	-	1	Bias and GE at end of reports
23650	1505	26	0.5	0.1	1	-	1	-	1	GE at end of reports
23949	381	165	3.7	-2.8	2	-	2	-	2	Bias and GE
32526	884	884	---	---	5	-	4	-	5	Gross Errors
32907	1174	610	0.4	0.0	4	-	3	-	4	GE from September
32922	1168	10	1.6	0.1	0	-	0	-	0	Bias and GE at end of reports
33587	590	0	1.5	1.0	0	-	0	-	0	Bias at end of period
33629	460	0	1.3	3.9	2	-	0	-	0	Bias
41525	73	31	7.0	2.4	1	-	0	-	1	Bias, SD and GE
41563	632	1	0.5	7.7	2	-	0	-	2	Bias
44504	2165	1335	1.1	7.7	6	-	5	-	6	Bias and GE
44512	482	0	0.8	2.8	2	-	0	-	0	Bias
44517	2478	1	1.8	0.3	0	-	0	-	0	Bias to September
44607	2303	61	2.6	3.9	3	-	2	-	2	Bias to November
44610	3728	2	1.5	-0.6	0	-	0	-	1	Bias at end of period
44621	333	0	2.5	3.6	1	-	0	-	0	Bias
44768	223	0	4.4	-2.3	0	-	1	-	1	Bias and SD
44772	2939	348	2.1	6.8	5	-	3	-	5	Bias and GE
46974	274	0	1.6	1.7	0	-	0	-	0	Bias
51536	154	0	3.5	-2.6	0	-	1	-	0	Bias
51642	49	21	2.6	-6.1	1	-	1	-	1	Bias
51650	161	64	0.7	-1.0	1	-	1	-	0	Gross Errors
51733	130	130	---	---	1	-	1	-	1	Gross Errors
51866	380	28	2.3	-1.0	1	-	1	-	1	Bias and GE at end of reports
51907	724	233	0.2	0.2	2	-	1	-	2	GE at end of reports
52533	2900	43	1.6	0.5	1	-	1	-	1	Bias at end of period
52536	2004	0	2.0	-1.0	0	-	1	-	0	Bias from November
52606	525	190	1.8	0.6	1	-	1	-	1	GE at end of reports
52620	930	8	0.8	-0.2	0	-	0	-	0	Bias and GE at end of reports
55905	3058	0	0.8	3.0	5	-	0	-	0	Bias
61532	346	32	3.6	-3.8	1	-	1	-	0	Bias and GE
61535	315	14	2.3	-0.5	0	-	2	-	0	GE at end of reports
61536	181	0	0.9	4.7	3	-	3	-	3	Bias
61659	219	45	6.0	-1.9	1	-	1	-	1	Bias, SD and GE
62711	5901	1	1.9	0.6	1	-	0	-	0	Bias at end of period
64549	161	11	2.9	1.1	0	-	0	-	0	Bias
64606	865	0	1.8	4.4	2	-	0	-	0	Bias
66511	489	24	4.5	-1.3	0	-	0	-	0	Bias, SD and GE
74520	512	172	4.3	4.2	2	-	2	-	2	Bias and GE

*ii): Platforms **operational** at the end of the reporting period*

Identifier	N Obs.	NGE	SD	Bias	B E F T W	Comments
17510	4617	0	1.7	-0.2	1 - 0 - 0	Bias from November
21533	4592	1	1.8	-0.7	0 - 0 - 0	Bias from October
23510	967	327	2.5	-1.8	3 - 1 - 2	Bias and GE at end of period
31975	238	0	2.3	2.3	2 - 5 - 0	Bias from October
33502	634	0	1.0	2.9	2 - 0 - 1	Bias from September
33633	2490	0	1.3	0.8	0 - 0 - 0	Bias in August
41577	4163	80	3.1	-1.2	1 - 1 - 1	Bias, SD and GE
44508	1380	0	1.7	-1.1	0 - 0 - 0	Bias in August and September
44516	2164	0	1.2	0.1	0 - 0 - 0	Bias at start of period
44730	4466	1	1.0	0.0	0 - 0 - 0	Bias at end of period
46972	1221	1	0.5	3.7	6 - 0 - 0	Bias
51909	1079	336	0.3	0.2	2 - 1 - 2	GE from November
52656	3513	0	0.8	0.0	0 - 0 - 0	Bias at end of period
61669	182	0	0.5	3.2	1 - 0 - 0	Bias
64553	2879	0	1.8	1.1	1 - 1 - 1	Bias at end of period

Table9b: Platforms reporting in SHIP code

Identifier	N Obs.	NGE	SD	Bias	B E F T W	Comments
A7EC	45	0	1.4	4.6	1 - 1 - 1	Bias
CGTF	294	73	2.8	4.8	3 - 2 - 2	Bias and GE
CG2522	113	18	2.5	4.9	4 - 3 - 4	Bias and GE
CG2992	177	125	0.8	8.8	3 - 2 - 2	Bias
C6FN4	78	36	1.0	-0.3	0 - 0 - 1	GE to September
C6FN5	61	27	1.9	-0.6	2 - 0 - 2	Gross Errors
C6MS4 *	203	1	1.5	-3.8	5 - 1 - 4	Bias
C6QO9 *	144	4	1.8	3.1	2 - 1 - 1	Bias and GE
DBAI	442	0	1.6	-1.0	0 - 3 - 0	Bias at end of period
DGCP	127	0	1.7	2.8	2 - 0 - 0	Bias
DHMN	97	0	0.7	3.1	3 - 0 - 0	Bias
ELKU8 *	184	0	1.9	1.1	1 - 0 - 0	Bias at end of period
ELTS6	60	2	3.4	6.2	1 - 1 - 1	Bias
ELUC5	282	1	1.4	1.2	0 - 0 - 0	Bias at end of period
ELVL9	55	5	2.9	-3.0	0 - 0 - 0	Bias
ELVO5 *	201	0	2.3	-2.5	0 - 0 - 0	Bias
ELWY3	41	0	1.1	3.1	1 - 0 - 0	Bias
ELXO4	86	0	1.2	-3.0	1 - 0 - 1	Bias in November
ELYE8	259	3	0.9	3.0	2 - 0 - 0	Bias
FNJI	691	0	1.0	3.2	6 - 0 - 0	Bias

Continued →

Identifier		N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
FNYF	*	396	2	2.6	1.6	1	-	0	-	0	Bias at end of reports
H3QA		307	0	1.5	-3.2	3	-	0	-	1	Bias
H9GW	*	65	1	1.3	3.3	2	-	0	-	1	Bias
H9IM	*	98	0	0.8	3.9	3	-	0	-	2	Bias
H9RS	*	229	28	2.1	3.4	2	-	2	-	2	Bias
JKHH	*	528	0	2.1	2.1	1	-	0	-	0	Bias
J8JW7	*	90	0	1.8	2.4	1	-	0	-	1	Bias at start of period
KGJX	*	227	11	1.5	2.3	1	-	0	-	0	GE in October
KHRC		52	0	1.0	-3.0	0	-	0	-	0	Bias
KRPB	*	316	0	1.4	-4.8	5	-	3	-	3	Bias
KS003	*	56	56	---	---	1	-	0	-	1	Gross Errors
KS005	*	580	2	1.4	-1.2	0	-	0	-	0	Bias at end of period
KS011		345	0	2.1	-2.5	2	-	2	-	0	Bias at end of reports
KS014	*	181	48	3.6	1.8	3	-	3	-	2	Bias and GE to November
LACF5		148	0	2.2	1.4	1	-	0	-	0	Bias
LAJY4	*	150	2	1.2	2.8	0	-	0	-	0	Bias
LARS5		209	12	4.4	-3.7	2	-	1	-	2	Bias from September
LAVW4		251	1	2.1	-2.3	1	-	0	-	0	Bias from October
MQKG7		171	0	2.2	-2.9	2	-	1	-	2	Bias from October
MVXQ8		63	0	1.0	-3.0	1	-	0	-	0	Bias
OYVQ2		215	2	1.4	1.7	1	-	0	-	1	Bias at end of reports
OZWP2		280	1	0.8	2.3	1	-	0	-	0	Bias at end of period
PDYX		128	0	1.1	-2.8	2	-	0	-	0	Bias
P3FN9		65	1	2.0	2.4	1	-	1	-	1	Bias
P3ZY6		83	2	1.4	-6.6	1	-	1	-	1	Bias
SHIPAO		71	7	2.6	-2.4	1	-	1	-	0	Bias
SHIPBL		78	1	2.0	-3.2	1	-	0	-	0	Bias
SWYM		44	1	1.0	-5.4	1	-	1	-	1	Bias
TSLN		630	0	1.5	-3.8	3	-	3	-	2	Bias
TSMS	*	524	1	1.7	-2.2	1	-	0	-	0	Bias to October
UBDP		52	12	2.7	-2.4	1	-	0	-	1	GE in December
UCBP		173	0	2.0	-4.8	5	-	4	-	4	Bias
UCDM		122	1	3.0	-3.3	2	-	3	-	2	Bias
UCJI		118	2	3.1	-1.3	1	-	1	-	0	Bias from October
UCJL		230	1	1.5	3.3	3	-	1	-	1	Bias
UCJO		54	1	1.6	-4.1	2	-	1	-	2	Bias
UCOL		157	0	1.9	-3.1	1	-	0	-	1	Bias from November
UCSS		47	0	1.1	-6.8	0	-	1	-	1	Bias
UCTI		44	1	1.9	-4.9	0	-	0	-	0	Bias
UCUP	*	112	1	3.1	-3.1	1	-	1	-	3	Bias to October

Continued →

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
UHCO	90	12	2.3	-0.8	0	-	1	-	0	GE in November
UHJU	75	1	2.5	-2.2	1	-	0	-	0	Bias from October
UHRT	95	0	1.3	-3.0	2	-	1	-	0	Bias
VCLM *	1351	137	1.9	1.1	5	-	2	-	3	GE in July and October
VGDT	44	0	2.4	-3.3	0	-	0	-	0	Bias to November
VJRB *	77	1	0.9	-3.6	1	-	0	-	0	Bias
VOCJ *	1403	0	1.8	3.1	5	-	0	-	2	Bias
VRRB *	121	1	1.8	-2.9	1	-	1	-	0	Bias to November
VRXR5	46	1	1.5	4.6	0	-	0	-	0	Bias
V2AQ3	94	1	3.1	-0.7	1	-	1	-	0	Bias from November
WCZ938 *	51	2	0.8	4.8	0	-	0	-	0	Bias
WDHL	92	35	2.4	-1.5	2	-	2	-	2	Bias
WPVD *	610	1	1.3	2.2	1	-	0	-	0	Bias from November
XYYY	456	10	2.0	5.3	4	-	1	-	4	Bias
YJQL3 *	229	1	2.1	-1.2	1	-	0	-	1	Bias at end of period
ZCBO5	202	2	2.4	-0.5	1	-	1	-	1	Bias at end of reports
ZCBQ2	102	2	1.7	5.3	2	-	2	-	2	Bias
ZIQE8	74	13	1.6	-2.2	1	-	0	-	1	GE in November
ZMFR	836	132	2.3	-0.5	2	-	1	-	2	Bias and GE from November
ZQVN8	80	1	2.6	-3.7	1	-	2	-	0	Bias
3FAP5	118	2	2.7	0.7	0	-	0	-	0	Bias from November
3FHX8 *	61	23	2.7	-1.6	1	-	0	-	1	Bias
3FMM6 *	215	0	1.1	-3.7	4	-	1	-	3	Bias
3FRR5 *	440	0	1.1	2.5	1	-	0	-	0	Bias from November
3FYB3	53	0	1.5	3.5	0	-	0	-	0	Bias
41008	4089	0	1.8	-0.8	1	-	0	-	1	Bias from November
42007 *	4079	0	1.7	-0.7	1	-	0	-	0	Bias from November
42021	1173	0	1.5	-3.0	1	-	0	-	0	Bias in December
44004	4096	0	1.5	0.3	0	-	0	-	0	Bias
44137 *	4097	0	3.1	0.2	1	-	1	-	1	Bias
45141	1762	1234	2.9	7.1	4	-	2	-	1	Bias and GE
45150	76	14	0.9	6.4	1	-	0	-	0	Bias and GE
45151 *	1984	0	1.2	2.0	0	-	4	-	3	Bias to September
45154 *	2948	9	1.6	1.6	1	-	4	-	1	Bias at start of period
45159	2910	0	1.8	-0.8	0	-	4	-	2	Bias at end of reports
45160	2774	0	1.8	-2.0	1	-	4	-	2	Bias
52082	998	50	0.3	0.0	1	-	1	-	1	GE at end of reports
6ELQY7	185	0	0.8	2.7	0	-	0	-	0	Bias
8PNI *	176	0	0.9	2.5	0	-	0	-	0	Bias
9VRA *	422	0	1.6	0.5	0	-	0	-	0	Bias at start of period
9VVN	84	2	3.7	-2.8	1	-	1	-	1	Bias

TABLE 10: LIST OF PLATFORMS REPORTING IN SHIP CODE NOT APPEARING IN TABLE 9 BUT LISTED AS SUSPECT OVER THE PERIOD JANUARY TO JUNE 2002.

Column	1	Call sign or identifier
Column	2	Number of sea-surface temperature observations available for monitoring over the 6-month period, including any observations with gross errors.
Column	3	Number of sea surface temperature observations differing by more than 10 °C from the background (gross error).
Column	4	Standard deviation of observation-minus-background differences excluding cases of gross error.
Column	5	Mean of observation-minus-background differences excluding cases of gross error.
Column	6	Comments on quality of sea surface temperature observations.
Notes:	1.	Units are °C

Identifier	N Obs.	NGE	SD	Bias	Comments
A8AA6	7	0	1.5	-2.6	Less than 40 reports
BBXX	2	0	0.9	0.8	Less than 40 reports
CFI9556	40	0	1.6	0.5	Bias reduced
CG2960	992	16	1.8	0.3	Bias reduced
C6MX4	210	0	0.9	1.5	Bias reduced
C6Q09	7	0	2.3	3.6	Less than 40 reports
DGNB	3563	0	1.5	0.8	Bias reduced
DINK	1	0	0.0	-5.2	Less than 40 reports
ELJQ2	0	---	---	---	No reports
ELOG5	218	5	1.3	1.1	Bias reduced
ELOX9	87	0	0.9	0.7	GE reduced
ELXO3	63	1	2.8	0.1	Bias reduced
ELZW9	58	0	1.7	1.1	Bias reduced
ELZY4	27	0	1.6	1.2	Less than 40 reports
FNIA	0	---	---	---	No reports
FNVA	854	0	0.9	0.7	Bias and GE reduced
H9FU	116	3	1.0	0.0	GE reduced
H9PD	7	0	0.5	2.0	Less than 40 reports
JADY	195	0	1.2	0.9	Bias reduced
KS013	13	0	0.4	-3.3	Less than 40 reports
LAJV4	192	0	1.8	2.2	Bias reduced
LAON4	300	1	1.3	0.0	Bias and GE reduced
MVLA7	194	0	1.6	-0.4	Bias reduced
MZIF7	108	0	2.9	-0.4	Bias reduced
NRUO	90	1	1.2	0.2	Bias and GE reduced

Continued →

Identifier	N Obs.	NGE	SD	Bias	Comments
OUJV2	0	---	---	---	No reports
OUZW2	81	0	1.6	0.4	GE reduced
PDYI	81	0	0.7	-1.2	Bias reduced
PIAN	75	0	1.0	-0.3	Bias reduced
PJJE	158	0	1.6	0.6	GE reduced
PJOX	24	0	1.7	0.7	Less than 40 reports
SHIPCB	11	0	1.9	2.0	Less than 40 reports
UAHV	8	0	0.5	-3.1	Less than 40 reports
UAMX	0	---	---	---	No reports
UAMY	47	0	1.6	-0.7	Bias reduced
UBDO	24	0	1.7	-2.6	Less than 40 reports
UCMV	16	0	1.8	-3.7	Less than 40 reports
UGMC	164	0	2.5	1.3	SD reduced
UHRS	5	0	2.4	-1.7	Less than 40 reports
VRVB9	12	0	0.8	1.6	Less than 40 reports
V2IA1	54	0	2.0	-1.4	Bias reduced
V7AV6	67	0	2.4	-1.3	Bias reduced
WBHU	30	0	1.1	2.0	Less than 40 reports
WDCJ	174	0	2.4	-1.5	Bias and SD reduced
WGLA	217	0	1.4	-2.3	Bias reduced
WZJD	189	0	0.8	-2.3	Bias reduced
ZCBD3	0	---	---	---	No reports
ZCBJ2	537	0	1.5	1.5	Bias reduced
ZNUB9	4	0	0.4	1.0	Less than 40 reports
13912	0	---	---	---	No reports
13943	0	---	---	---	No reports
13946	0	---	---	---	No reports
15502	0	---	---	---	No reports
15613	0	---	---	---	No reports
16950	0	---	---	---	No reports
21644	0	---	---	---	No reports
21645	0	---	---	---	No reports
22511	0	---	---	---	No reports
22512	0	---	---	---	No reports
22513	0	---	---	---	No reports
23912	0	---	---	---	No reports
23962	0	---	---	---	No reports
3ECM7	584	0	1.4	1.3	Bias reduced
3FDO6	53	0	2.2	0.4	Bias reduced
3FDZ5	9	0	1.1	2.1	Less than 40 reports

Continued →

Identifier	N Obs.	NGE	SD	Bias	Comments
3FJV4	31	0	1.6	3.6	Less than 40 reports
3FKD6	353	0	1.5	0.6	Bias, SD and GE reduced
31913	0	---	---	---	No reports
31974	0	---	---	---	No reports
32618	0	---	---	---	No reports
41664	0	---	---	---	No reports
42035	4098	0	1.1	-0.5	Bias reduced
43918	0	---	---	---	No reports
44013	4084	0	1.0	0.2	Bias reduced
44766	0	---	---	---	No reports
45007	1211	0	1.4	0.8	Bias reduced
45144	0	---	---	---	No reports
46060	8072	0	0.9	0.6	Bias reduced
46968	0	---	---	---	No reports
46970	0	---	---	---	No reports
51510	0	---	---	---	No reports
51648	0	---	---	---	No reports
52043	0	---	---	---	No reports
52083	0	---	---	---	No reports
52530	0	---	---	---	No reports
54903	0	---	---	---	No reports
55911	0	---	---	---	No reports
55912	0	---	---	---	No reports
55915	0	---	---	---	No reports
61528	0	---	---	---	No reports
61658	0	---	---	---	No reports
62029	3188	4	0.4	0.2	Bias reduced
62695	0	---	---	---	No reports
64552	0	---	---	---	No reports
64560	0	---	---	---	No reports
65603	0	---	---	---	No reports
74906	0	---	---	---	No reports
9HQK6	12	0	2.2	-2.5	Less than 40 reports
9VIH	8	0	1.3	3.5	Less than 40 reports

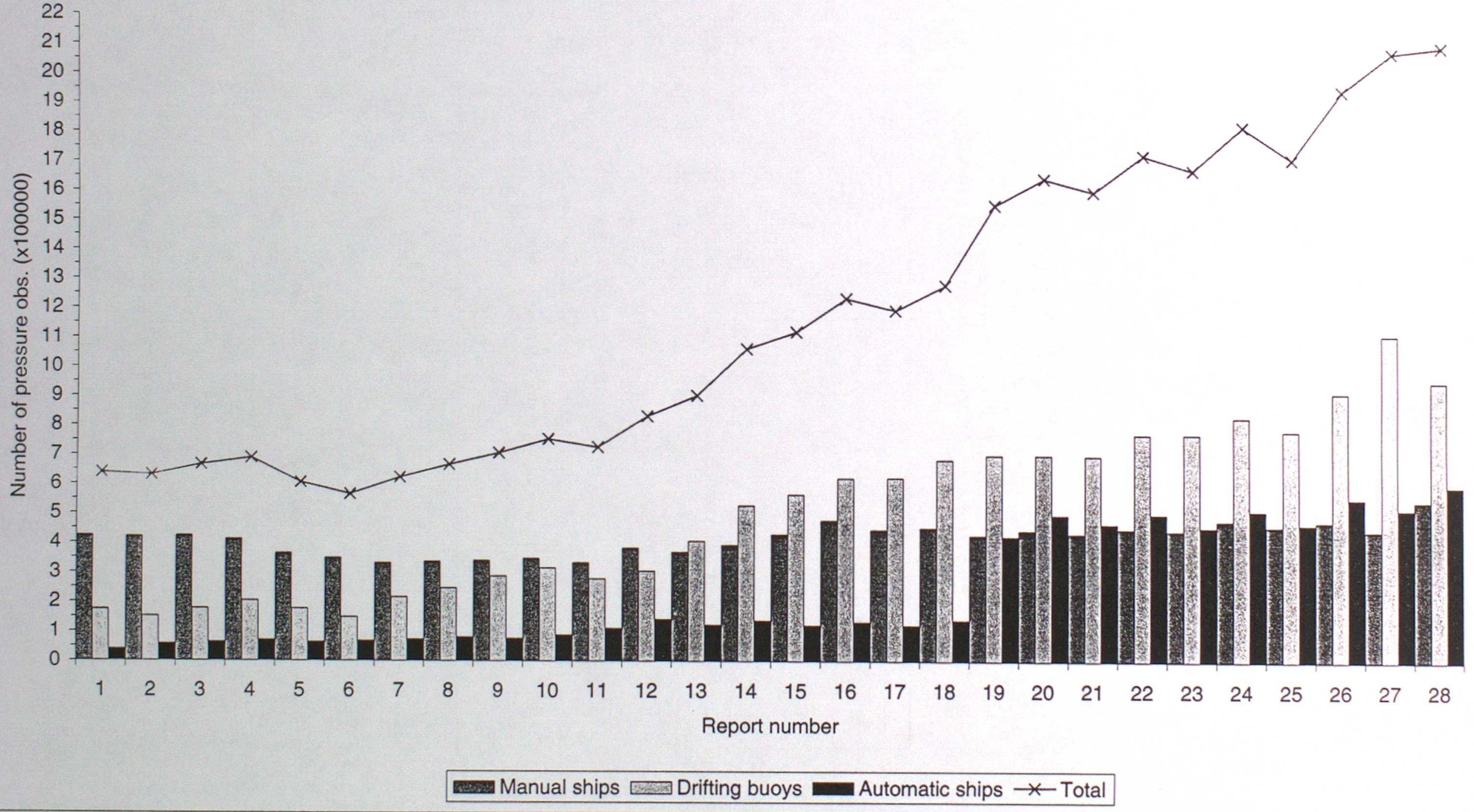
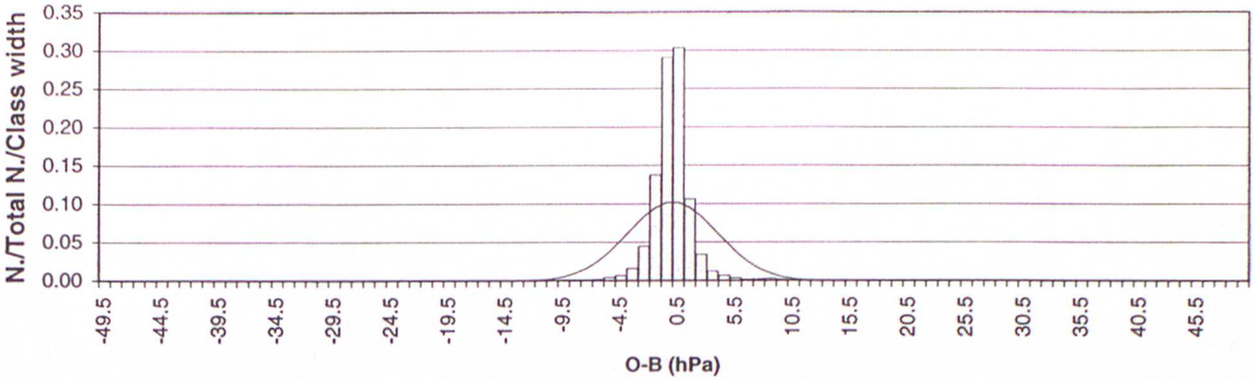


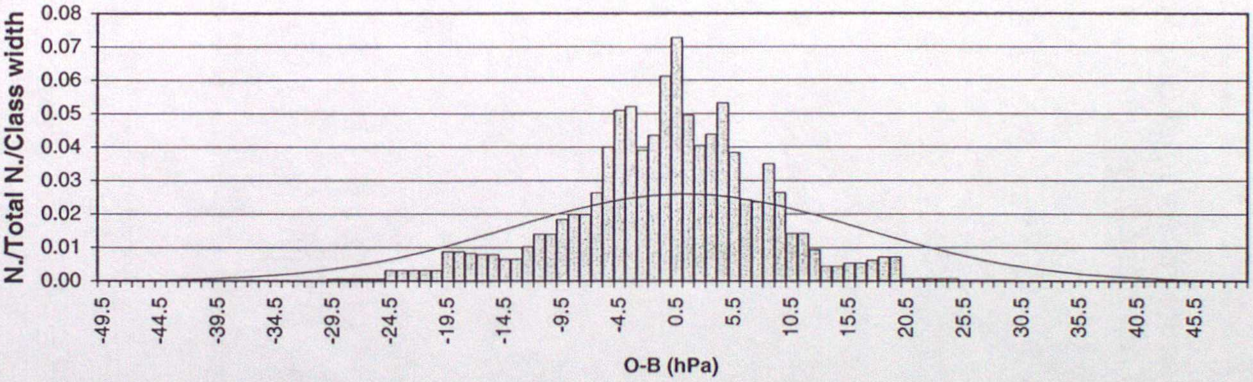
Figure 1: Number of observations of pressure received at Bracknell on the GTS for each of the six-month periods covered by the WMO reports on the quality of marine surface observations

Figure 2a: Distribution of ship O-B pressure (hPa)
Period of data: July-Dec 2002 Data used: All observations



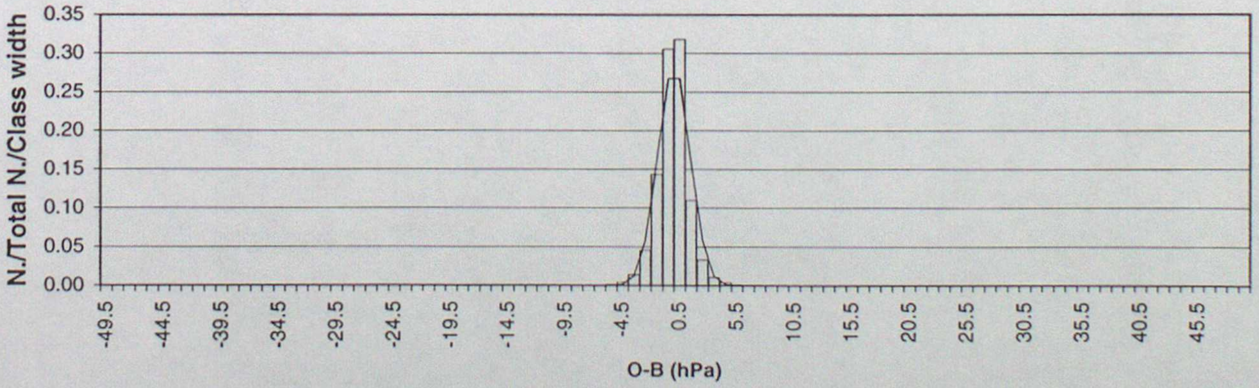
Mean O-B = 0.0 SD O-B = 3.9

Figure 2b: Distribution of ship O-B pressure (hPa)
Period of data: July-Dec 2002 Data used: Flagged observations



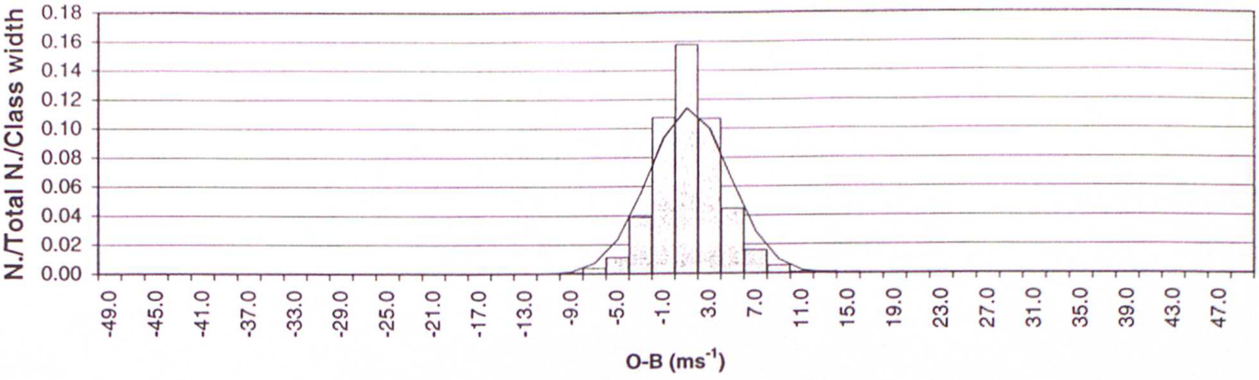
Mean O-B = 1.2 SD O-B = 15.4

Figure 2c: Distribution of ship O-B pressure (hPa)
Period of data: July-Dec 2002 Data used: Unflagged observations



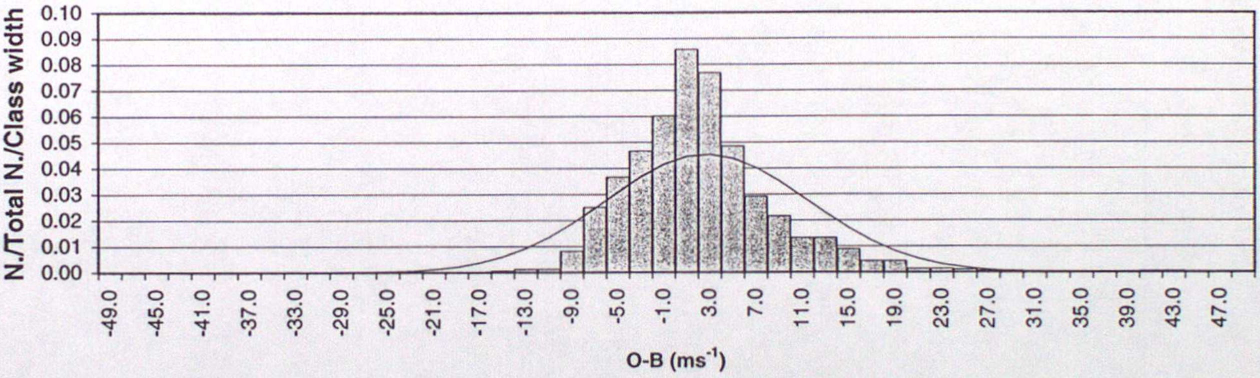
Mean O-B = 0.0 SD O-B = 1.4

Figure 2d: Distribution of ship O-B wind speed (ms^{-1})
Period of data: July-Dec 2002 Data used: All observations



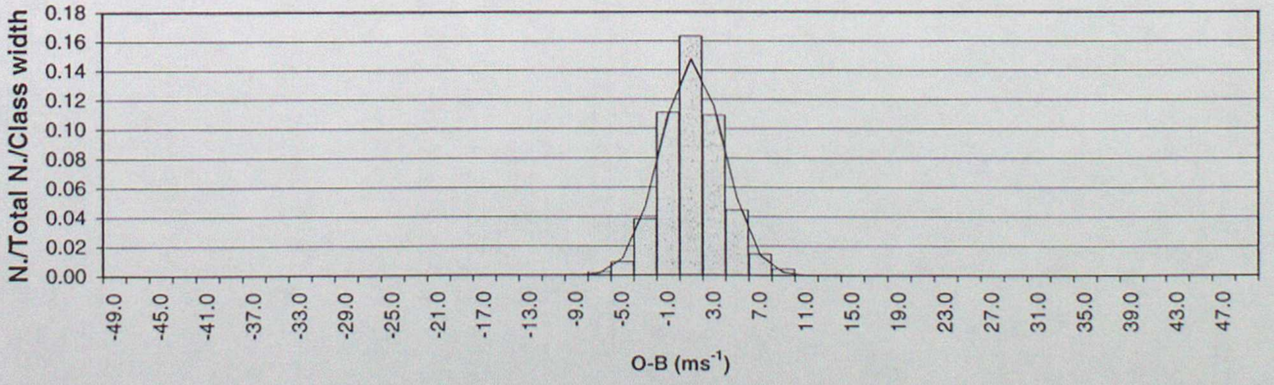
Mean O-B = 1.2 SD O-B = 3.5

Figure 2e: Distribution of ship O-B wind speed (ms^{-1})
Period of data: July-Dec 2002 Data used: Flagged observations



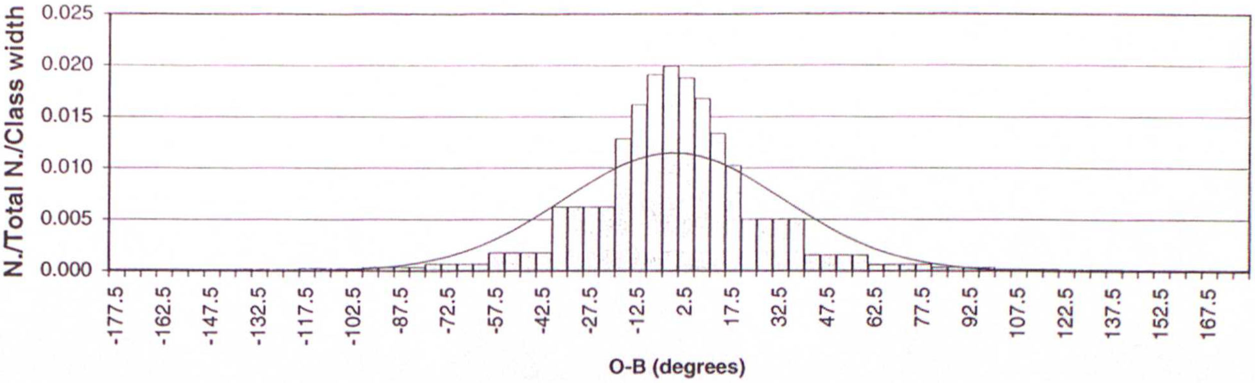
Mean O-B = 2.7 SD O-B = 8.8

Figure 2f: Distribution of ship O-B wind speed (ms^{-1})
Period of data: July-Dec 2002 Data used: Unflagged observations



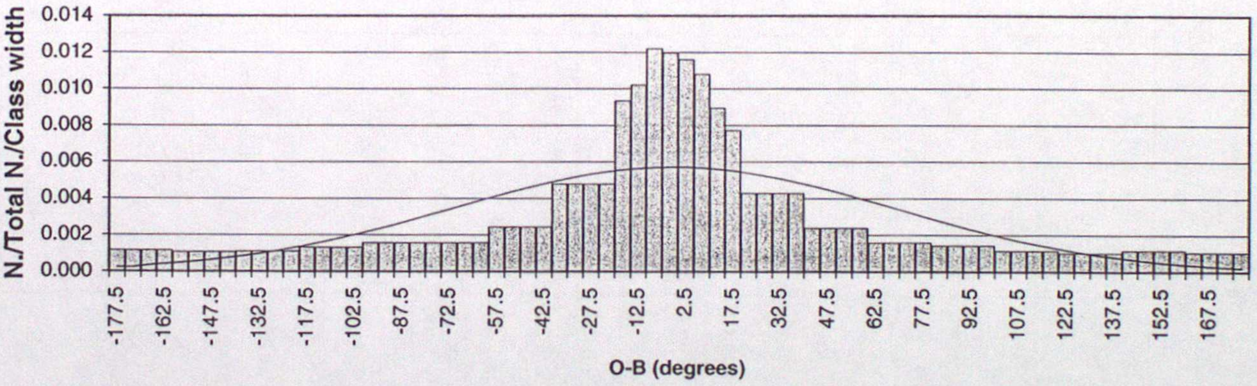
Mean O-B = 1.1 SD O-B = 2.7

Figure 2g: Distribution of ship O-B wind direction (degrees)
Period of data: July-Dec 2002 Data used: All observations



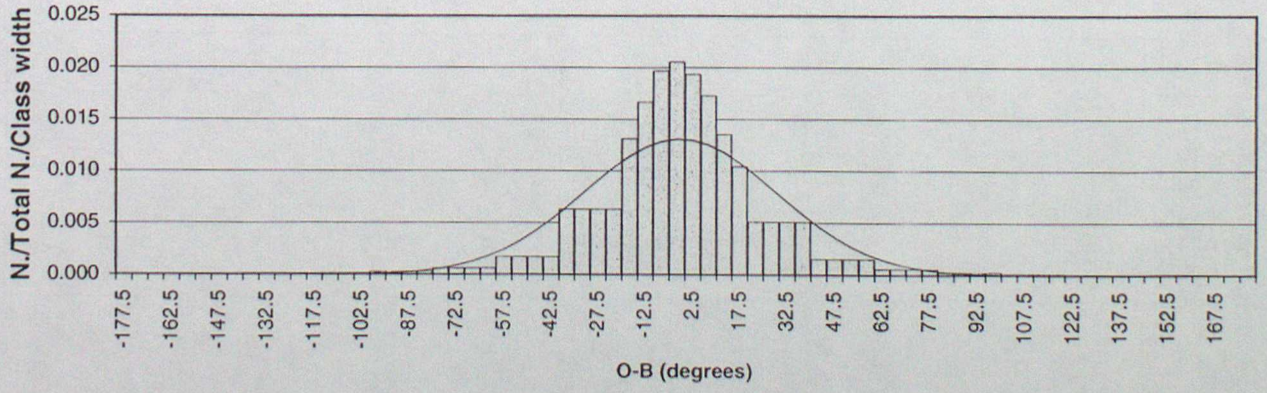
Mean O-B = -1.5 SD O-B = 34.8

Figure 2h: Distribution of ship O-B wind direction (degrees)
Period of data: July-Dec 2002 Data used: Flagged observations



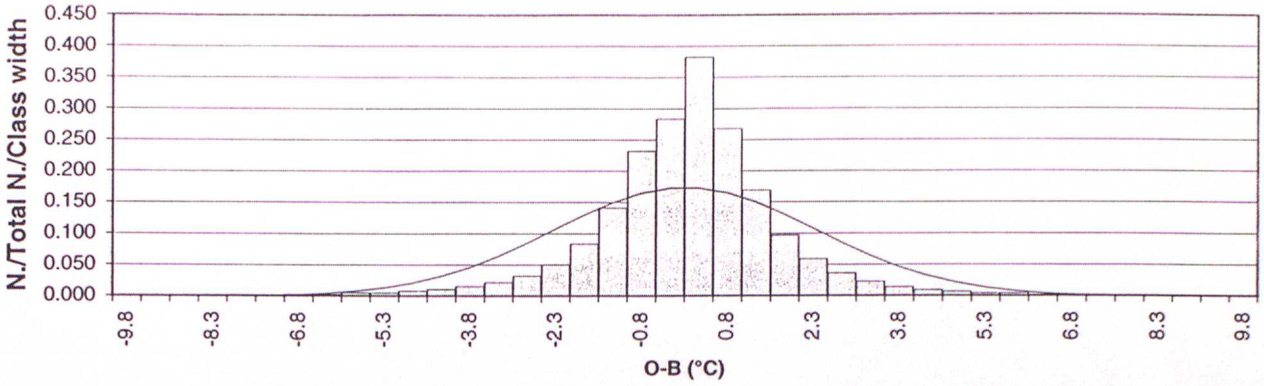
Mean O-B = -1.4 SD O-B = 69.9

Figure 2i: Distribution of ship O-B wind direction (degrees)
Period of data: July-Dec 2002 Data used: Unflagged observations



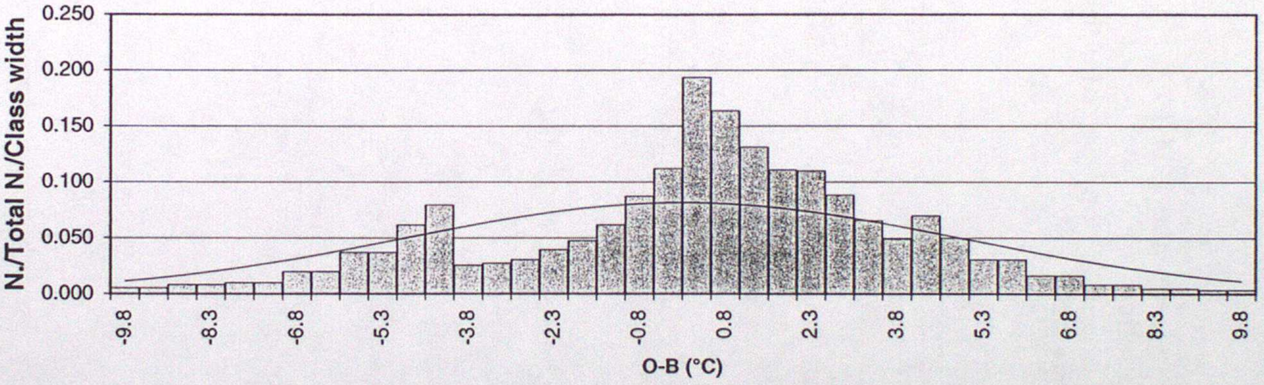
Mean O-B = -1.5 SD O-B = 30.5

Figure 2j: Distribution of ship O-B SST (°C)
Period of data: July-Dec 2002   Data used: All observations



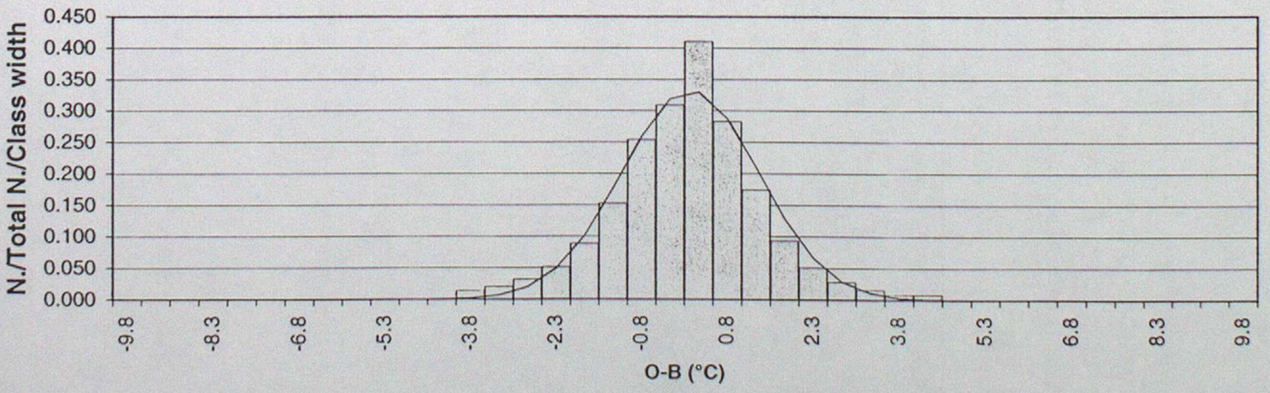
Mean O-B = 0.0   SD O-B = 2.3

Figure 2k: Distribution of ship O-B SST (°C)
Period of data: July-Dec 2002   Data used: Flagged observations



Mean O-B = 0.0   SD O-B = 4.9

Figure 2l: Distribution of ship O-B SST (°C)
Period of data: July-Dec 2002   Data used: Unflagged observations



Mean O-B = 0.1   SD O-B = 1.2

Figure 3: Bias of Ship O-B Pressure (hPa). Date:- July - December 2002
Only observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
Shaded areas have a bias of magnitude greater than 0.5 hPa

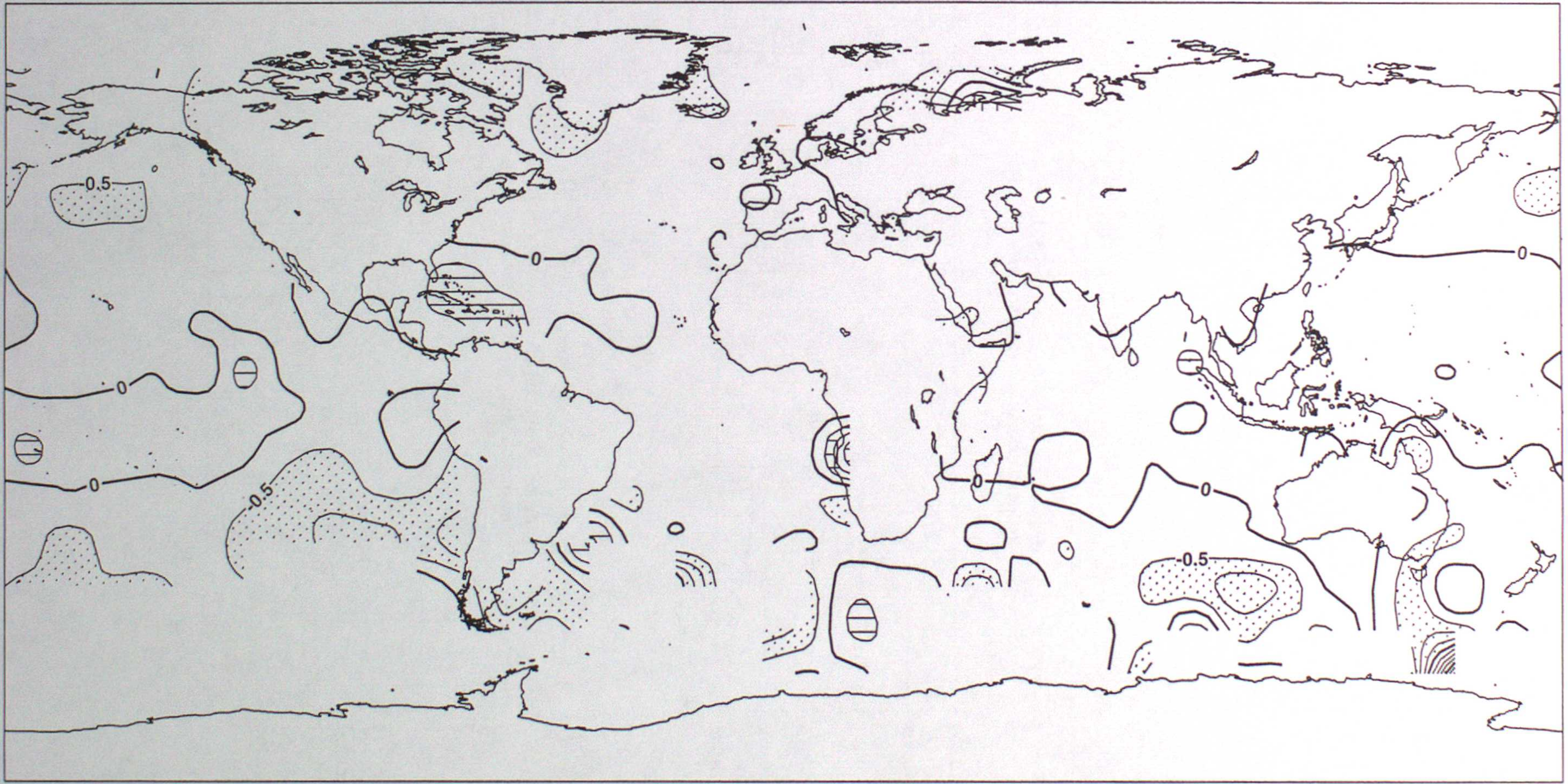


Figure 4: Standard Deviation of Ship O-B Pressure (hPa). Date:- July - December 2002
Only Observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
Shaded areas have a standard deviation of greater than 2.0 hPa

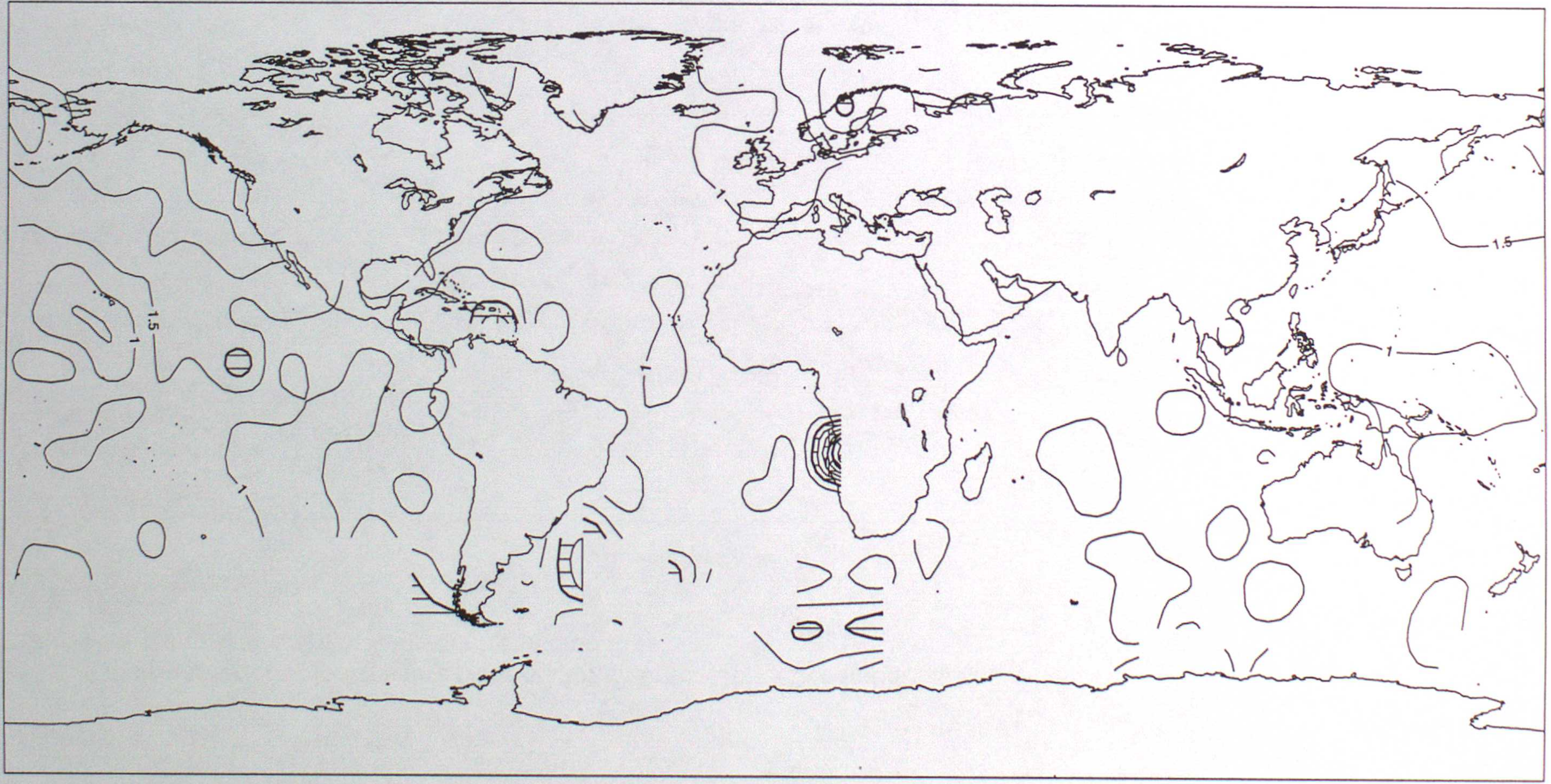


Figure 5:
Plot of the Number of Ship Pressure Observations. Date:- July - December 2002
Only observations passing quality control included

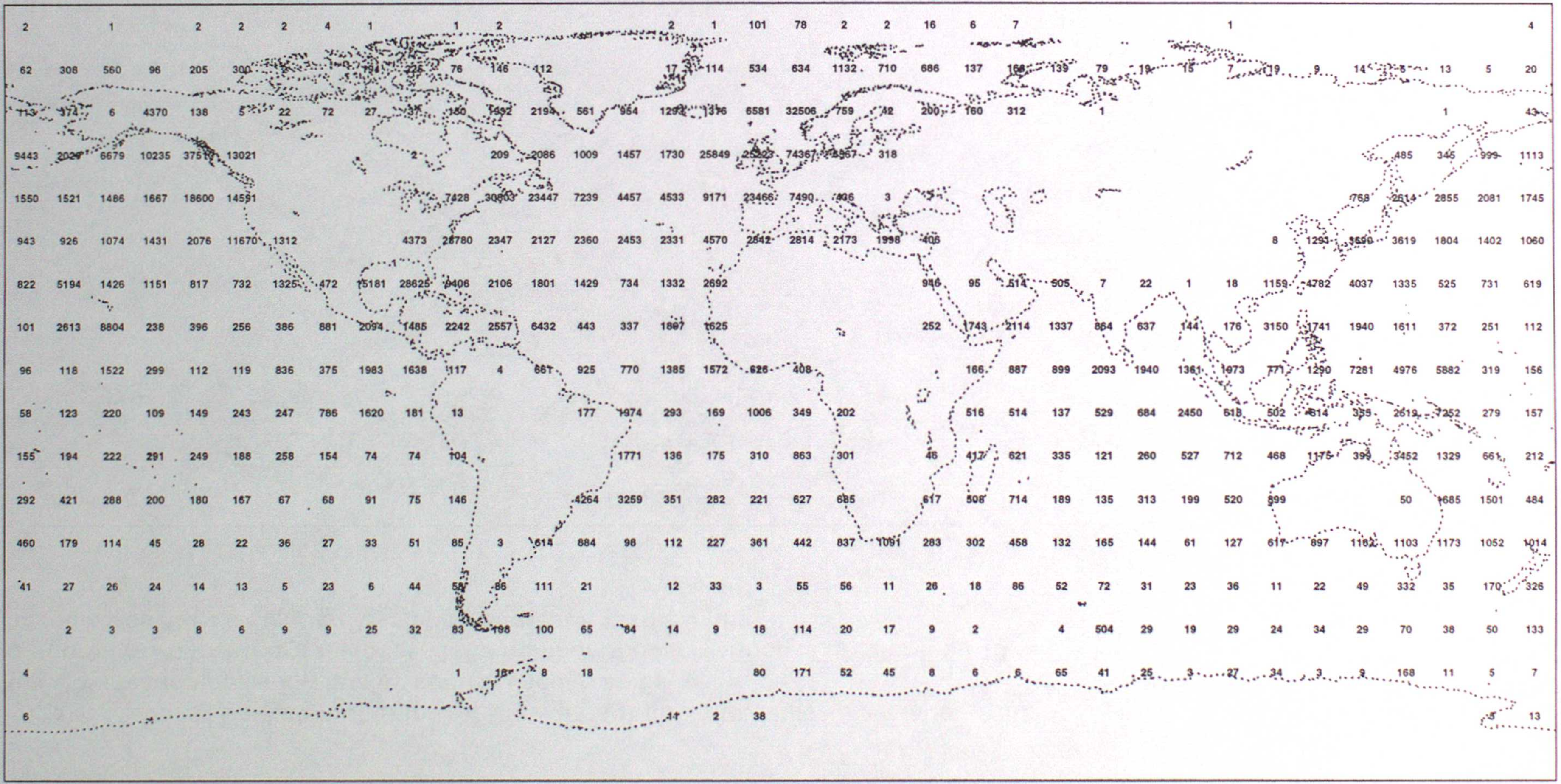

2 1 2 2 2 4 1 1 2 2 1 101 78 2 2 16 6 7 1 4
62 308 560 96 205 300 194 225 76 146 112 17 114 534 634 1132 710 686 137 168 139 79 19 15 7 19 9 14 5 13 5 20
713 374 6 4370 138 5 22 72 27 160 1692 2194 561 954 1294 1376 6581 32506 759 42 200 160 312 1 1 43
9443 2026 6679 10235 3751 13021 2 209 2086 1009 1457 1730 25849 25923 74367 24567 318 485 345 999 1113
1550 1521 1486 1667 18600 14591 7428 30603 23447 7239 4457 4533 9171 23466 7490 406 3 768 2614 2855 2081 1745
943 926 1074 1431 2076 11670 1312 4373 28780 2347 2127 2360 2453 2331 4570 2642 2814 2173 1998 405 8 1293 3590 3619 1804 1402 1060
822 5194 1426 1151 817 732 1325 472 15181 28625 9406 2106 1801 1429 734 1332 2692 946 95 514 505 7 22 1 18 1159 4782 4037 1335 525 731 619
101 2613 8804 238 396 256 386 881 2094 1485 2242 2557 6432 443 337 1697 1625 252 1743 2114 1337 864 637 144 176 3150 1741 1940 1611 372 251 112
96 118 1522 299 112 119 836 375 1983 1638 117 4 661 925 770 1385 1572 626 408 166 887 899 2093 1940 1361 1073 771 1290 7281 4976 5882 319 156
58 123 220 109 149 243 247 786 1620 181 13 177 1974 293 169 1006 349 202 516 514 137 529 684 2450 618 502 814 355 2619 7252 279 157
155 194 222 291 249 188 258 154 74 74 104 1771 136 175 310 863 301 46 417 621 335 121 260 527 712 468 1175 399 3452 1329 661 212
292 421 288 200 180 167 67 68 91 75 146 4264 3259 351 282 221 627 685 617 508 714 189 135 313 199 520 899 50 1685 1501 484
460 179 114 45 28 22 36 27 33 51 85 3 614 884 98 112 227 361 442 837 1091 283 302 458 132 165 144 61 127 617 897 1162 1103 1173 1052 1014
41 27 26 24 14 13 5 23 6 44 58 86 111 21 12 33 3 55 56 11 26 18 86 52 72 31 23 36 11 22 49 332 35 170 326
2 3 3 8 6 9 9 25 32 83 198 100 65 84 14 9 18 114 20 17 9 2 4 504 29 19 29 24 34 29 70 38 50 133
4 1 18 8 18 80 171 52 45 8 6 6 65 41 25 3 27 34 3 9 168 11 5 7
6 11 2 38 13

Figure 6: Bias of Ship O-B Wind Speed (ms-1). Date:- July - December 2002
Only observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
Shaded areas have a bias of magnitude greater than 2.0 ms-1

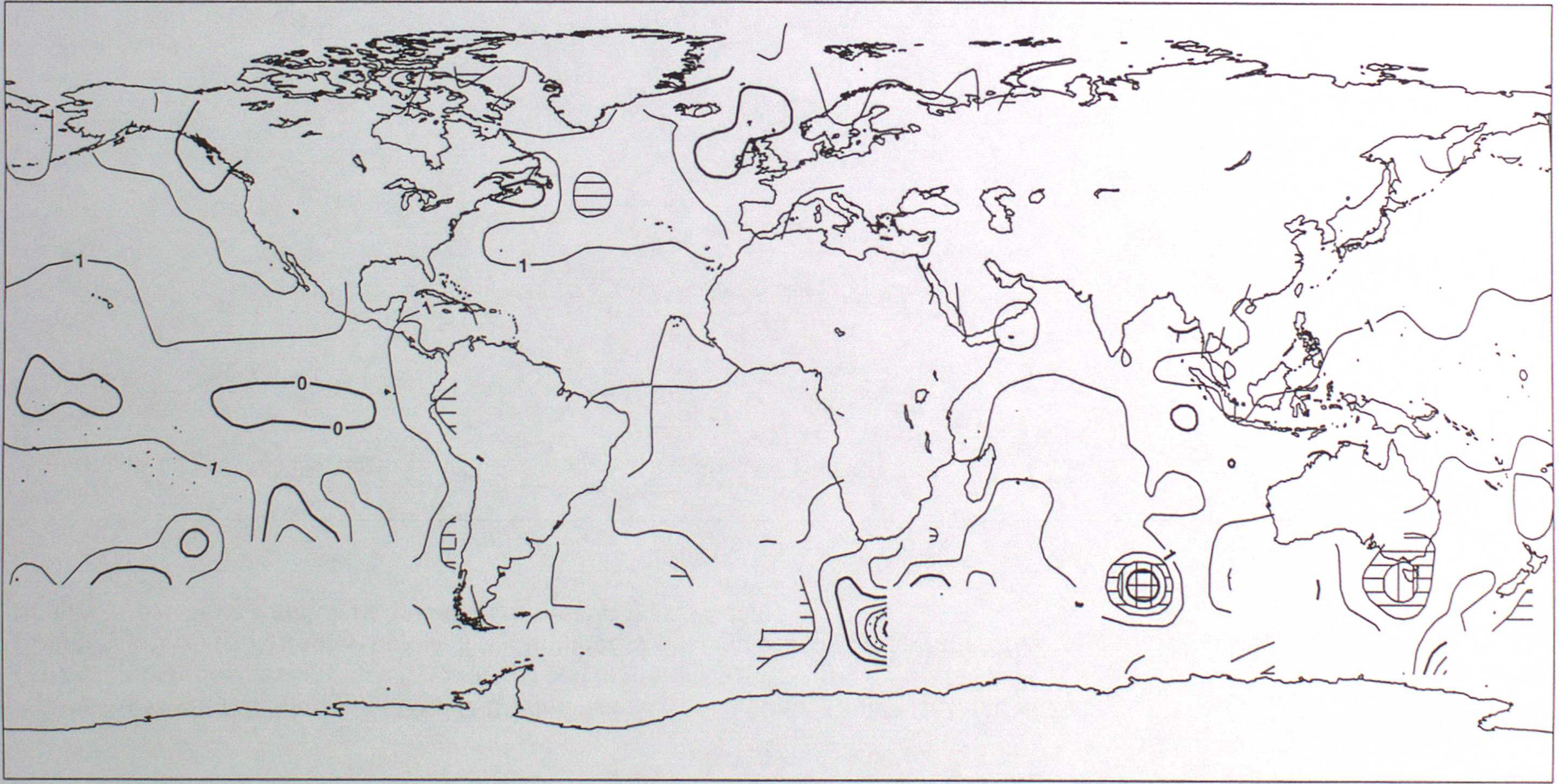


Figure 7: Standard Deviation of Ship O-B Wind Speed (ms-1). Date:- July - December 2002
Only Observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
Shaded areas have a standard deviation of greater than 4.0 ms-1

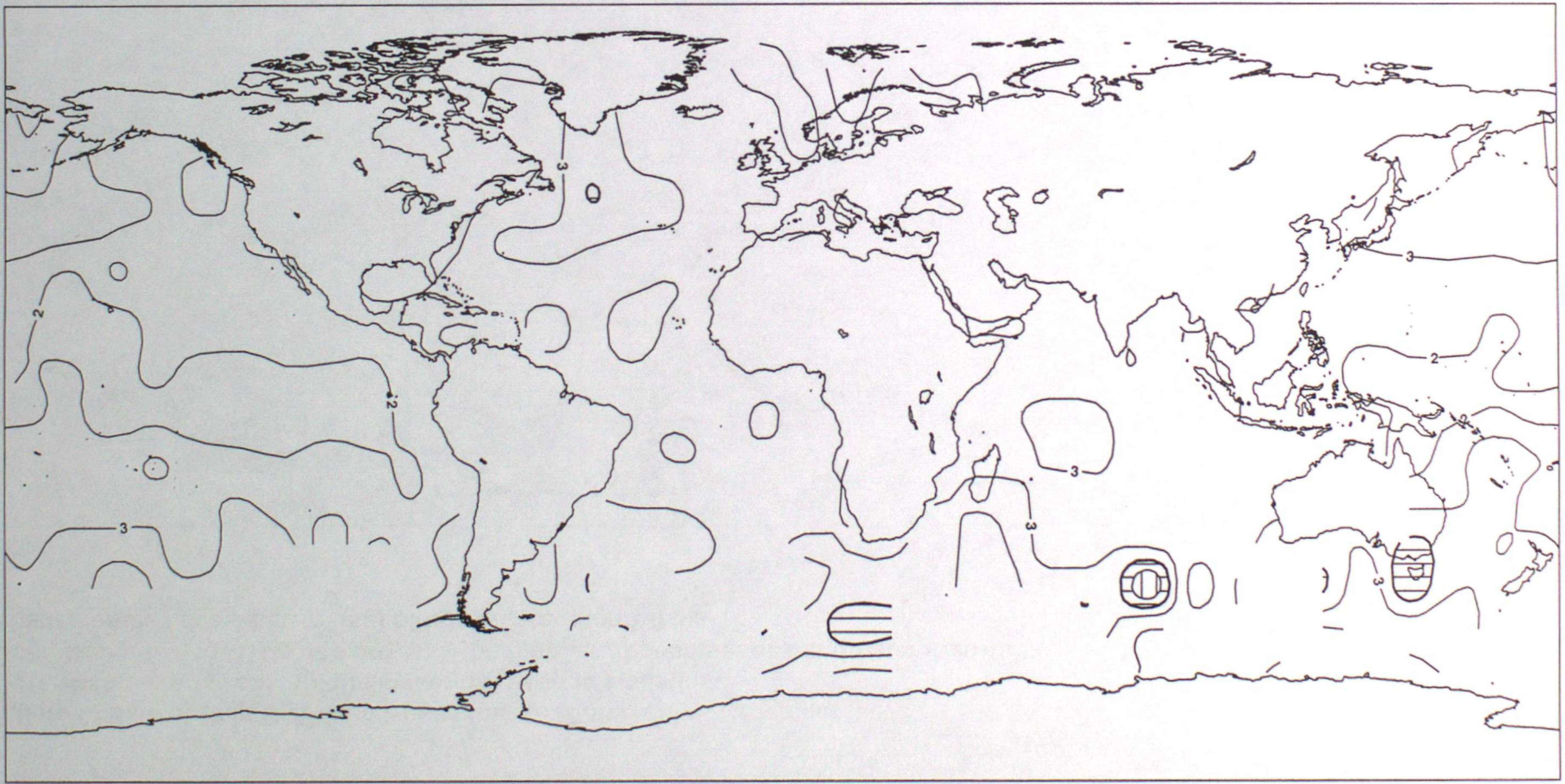


Figure 8:
Plot of the Number of Ship Wind Speed Observations. Date:- July - December 2002
Only observations passing quality control included

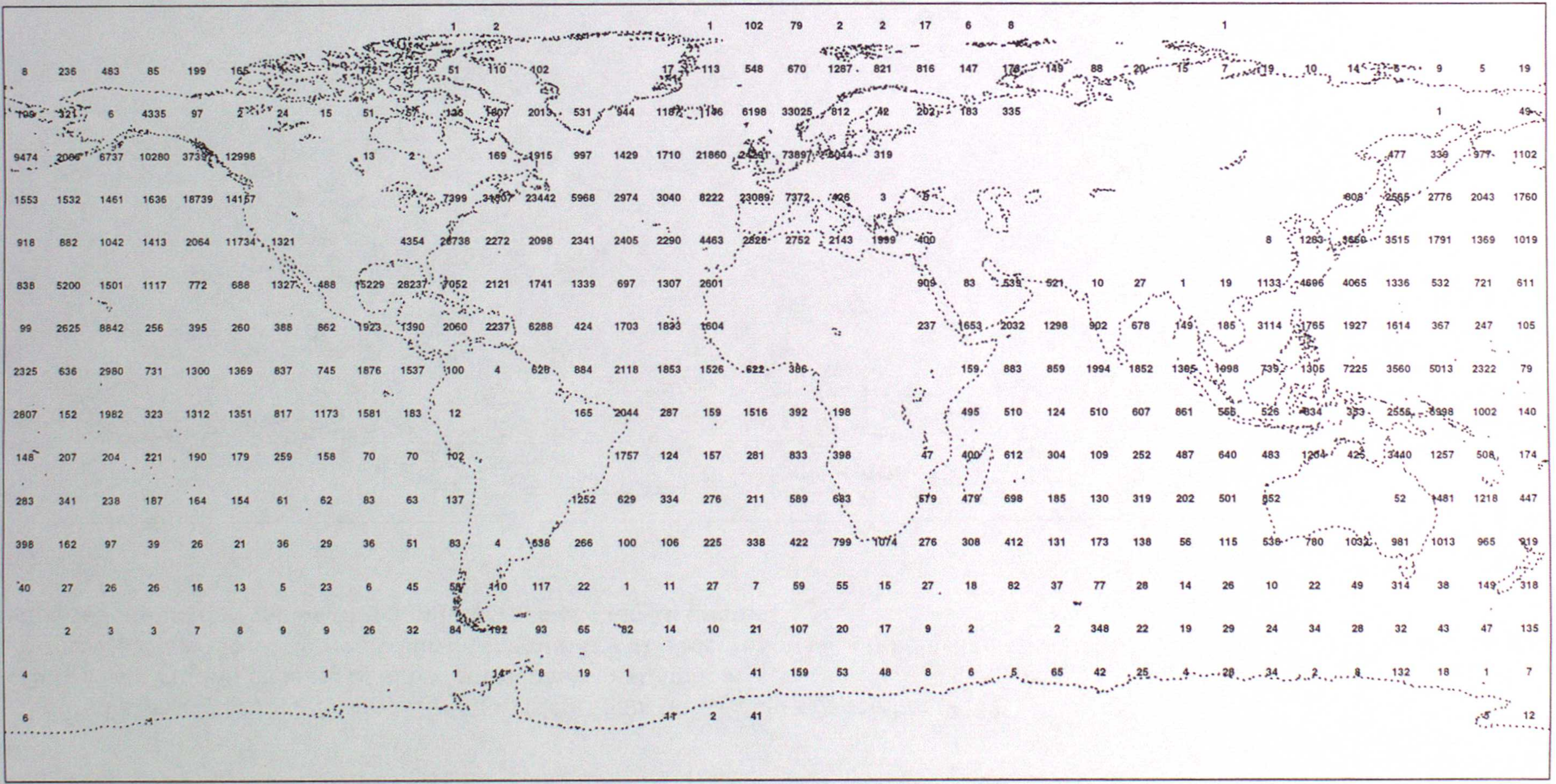

1 2 1 102 79 2 2 17 6 8 1
8 236 483 85 199 165 772 211 51 110 102 17 113 548 670 1287 821 816 147 178 149 88 20 15 7 19 10 14 8 9 5 19
109 321 6 4335 97 2 24 15 51 57 136 1807 2013 531 944 1187 1146 6198 33025 812 42 202 183 335 1 49
9474 2066 6737 10280 3739 12998 13 2 169 1915 997 1429 1710 21860 24261 73897 22044 319 477 339 977 1102
1553 1532 1461 1636 18739 14157 7399 34807 23442 5968 2974 3040 8222 23089 7372 426 3 8 808 2565 2776 2043 1760
918 882 1042 1413 2064 11734 1321 4354 26738 2272 2098 2341 2405 2290 4463 2828 2752 2143 1999 400 8 1283 5650 3515 1791 1369 1019
838 5200 1501 1117 772 688 1327 488 15229 28237 7052 2121 1741 1339 697 1307 2601 909 83 539 521 10 27 1 19 1133 4696 4065 1336 532 721 611
99 2625 8842 256 395 260 388 862 1923 1390 2060 2237 6288 424 1703 1833 1604 237 1653 2032 1298 902 678 149 185 3114 1765 1927 1614 367 247 105
2325 636 2980 731 1300 1369 837 745 1876 1537 100 4 628 884 2118 1853 1526 622 386 159 883 859 1994 1852 1385 1098 739 1305 7225 3560 5013 2322 79
2807 152 1982 323 1312 1351 817 1173 1581 183 12 165 2044 287 159 1516 392 198 495 510 124 510 607 861 565 526 834 353 2556 6998 1002 140
148 207 204 221 190 179 259 158 70 70 102 1757 124 157 281 833 398 47 400 612 304 109 252 487 640 483 1204 425 3440 1257 508 174
283 341 238 187 164 154 61 62 83 63 137 1252 629 334 276 211 589 683 579 479 698 185 130 319 202 501 852 52 1481 1218 447
398 162 97 39 26 21 36 29 36 51 83 4 638 266 100 106 225 338 422 799 1074 276 308 412 131 173 138 56 115 536 780 1032 981 1013 965 919
40 27 26 26 16 13 5 23 6 45 58 110 117 22 1 11 27 7 59 55 15 27 18 82 37 77 28 14 26 10 22 49 314 38 149 318
2 3 3 7 8 9 9 26 32 84 192 93 65 82 14 10 21 107 20 17 9 2 2 348 22 19 29 24 34 28 32 43 47 135
4 1 1 14 8 19 1 41 159 53 48 8 6 5 65 42 25 4 28 34 2 8 132 18 1 7
6 14 2 41 5 12

Figure 9: Bias of Ship O-B Wind Direction (degrees). Date:- July - December 2002
Only observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
Shaded areas have a bias of magnitude greater than 10 degrees

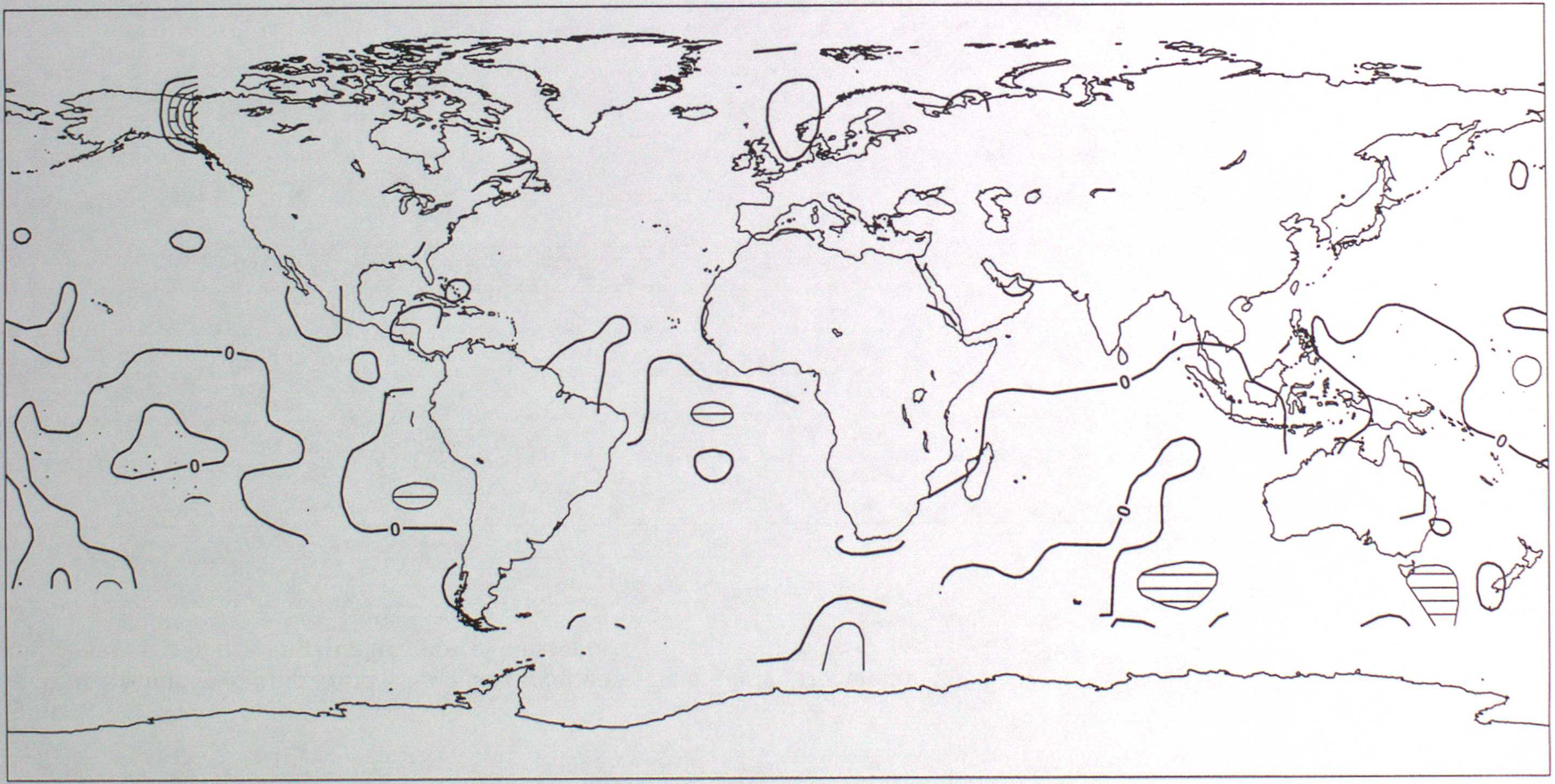


Figure 10: Standard Deviation of Ship O-B Wind Direction (degrees). Date:- July - December 2002
Only Observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
Shaded areas have a standard deviation of greater than 40 degrees

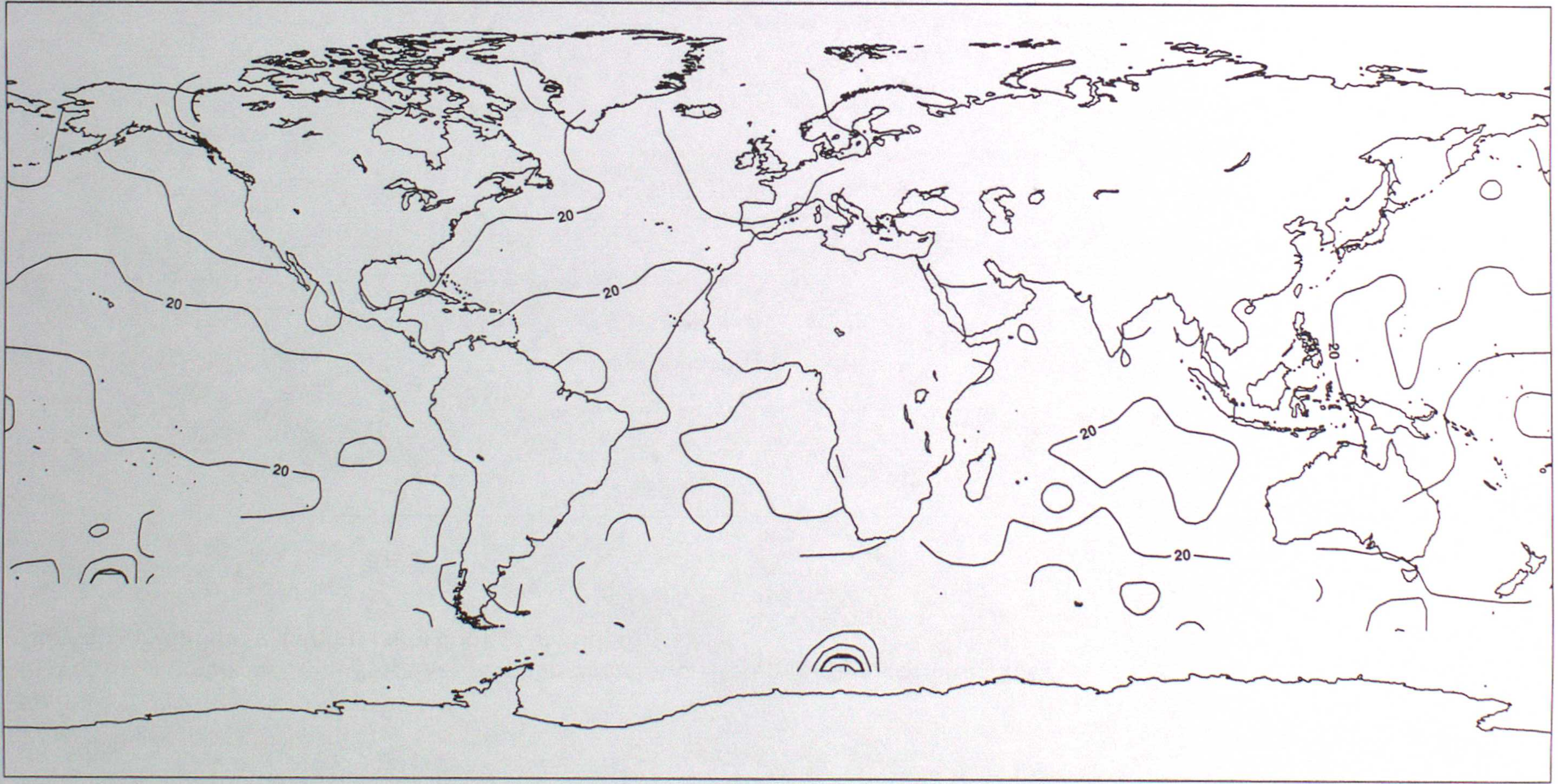


Figure 11:
Plot of the Number of Ship Wind Direction Observations. Date:- July - December 2002
Only observations passing quality control included

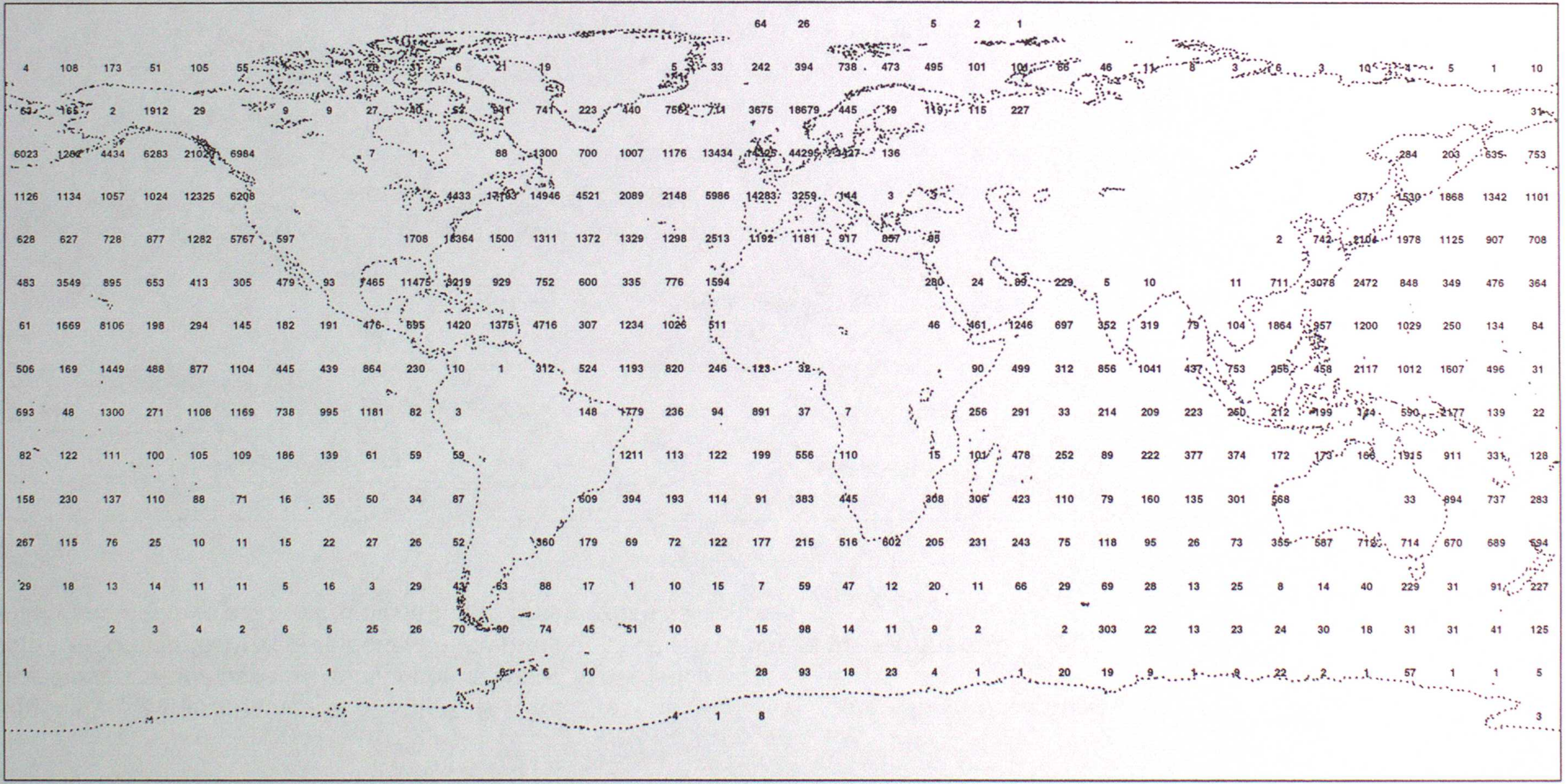

64 26 5 2 1
4 108 173 51 105 55 6 21 19 5 33 242 394 738 473 495 101 104 66 46 11 8 3 6 3 10 4 5 1 10
63 165 2 1912 29 9 9 27 40 52 341 741 223 440 756 714 3675 18679 445 19 119 115 227 31
6023 1282 4434 6283 21027 6984 7 1 88 1300 700 1007 1176 13434 14325 44295 3427 136 284 203 635 753
1126 1134 1057 1024 12325 6208 4433 17163 14946 4521 2089 2148 5986 14283 3259 144 3 371 1530 1868 1342 1101
628 627 728 877 1282 5767 597 1708 18364 1500 1311 1372 1329 1298 2513 1192 1181 917 857 85 2 742 2104 1978 1125 907 708
483 3549 895 653 413 305 479 93 7465 11475 3219 929 752 600 335 776 1594 280 24 89 229 5 10 11 711 3078 2472 848 349 476 364
61 1669 8106 198 294 145 182 191 476 695 1420 1375 4716 307 1234 1026 511 46 461 1246 697 352 319 79 104 1864 957 1200 1029 250 134 84
506 169 1449 488 877 1104 445 439 864 230 10 1 312 524 1193 820 246 123 32 90 499 312 856 1041 437 753 255 458 2117 1012 1607 496 31
693 48 1300 271 1108 1169 738 995 1181 82 3 148 1779 236 94 891 37 7 256 291 33 214 209 223 260 212 199 124 590 2177 139 22
82 122 111 100 105 109 186 139 61 59 59 1211 113 122 199 556 110 15 101 478 252 89 222 377 374 172 173 166 1915 911 331 128
158 230 137 110 88 71 16 35 50 34 87 609 394 193 114 91 383 445 308 306 423 110 79 160 135 301 568 33 894 737 283
267 115 76 25 10 11 15 22 27 26 52 360 179 69 72 122 177 215 516 602 205 231 243 75 118 95 26 73 355 587 718 714 670 689 594
29 18 13 14 11 11 5 16 3 29 43 63 88 17 1 10 15 7 59 47 12 20 11 66 29 69 28 13 25 8 14 40 229 31 91 227
2 3 4 2 6 5 25 26 70 90 74 45 51 10 8 15 98 14 11 9 2 2 303 22 13 23 24 30 18 31 31 41 125
1 1 1 6 6 10 28 93 18 23 4 1 1 20 19 9 1 8 22 2 1 57 1 1 5
4 1 8 3

Figure 12: Bias of Ship O-B SST (degrees C). Date:- July - December 2002
Only observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
Shaded areas have a bias of magnitude greater than 1.0 degree C

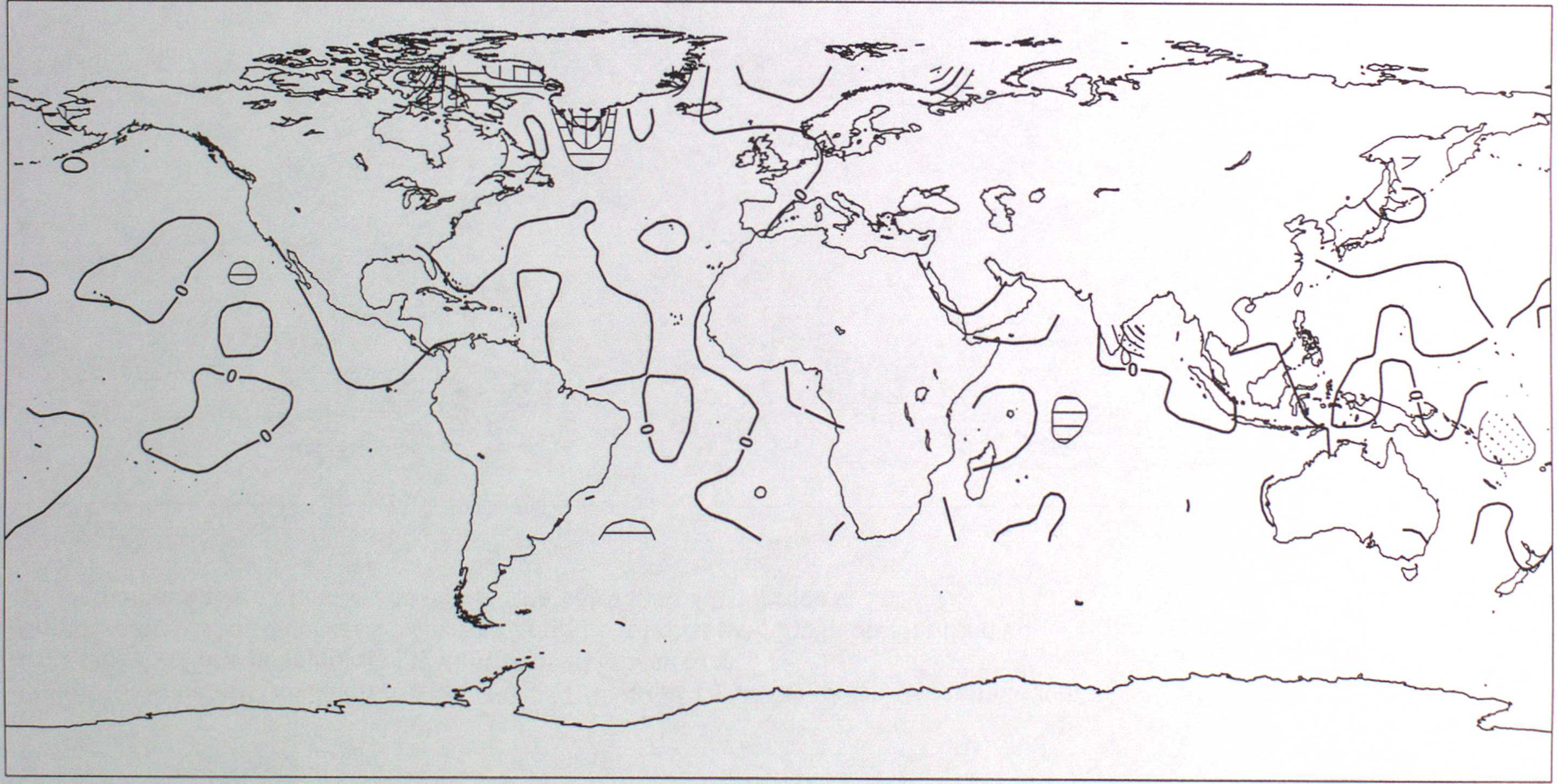


Figure 13: Standard Deviation of Ship O-B SST (degrees C). Date:- July - December 2002
Only Observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
Shaded areas have a standard deviation of greater than 3.0 degrees C

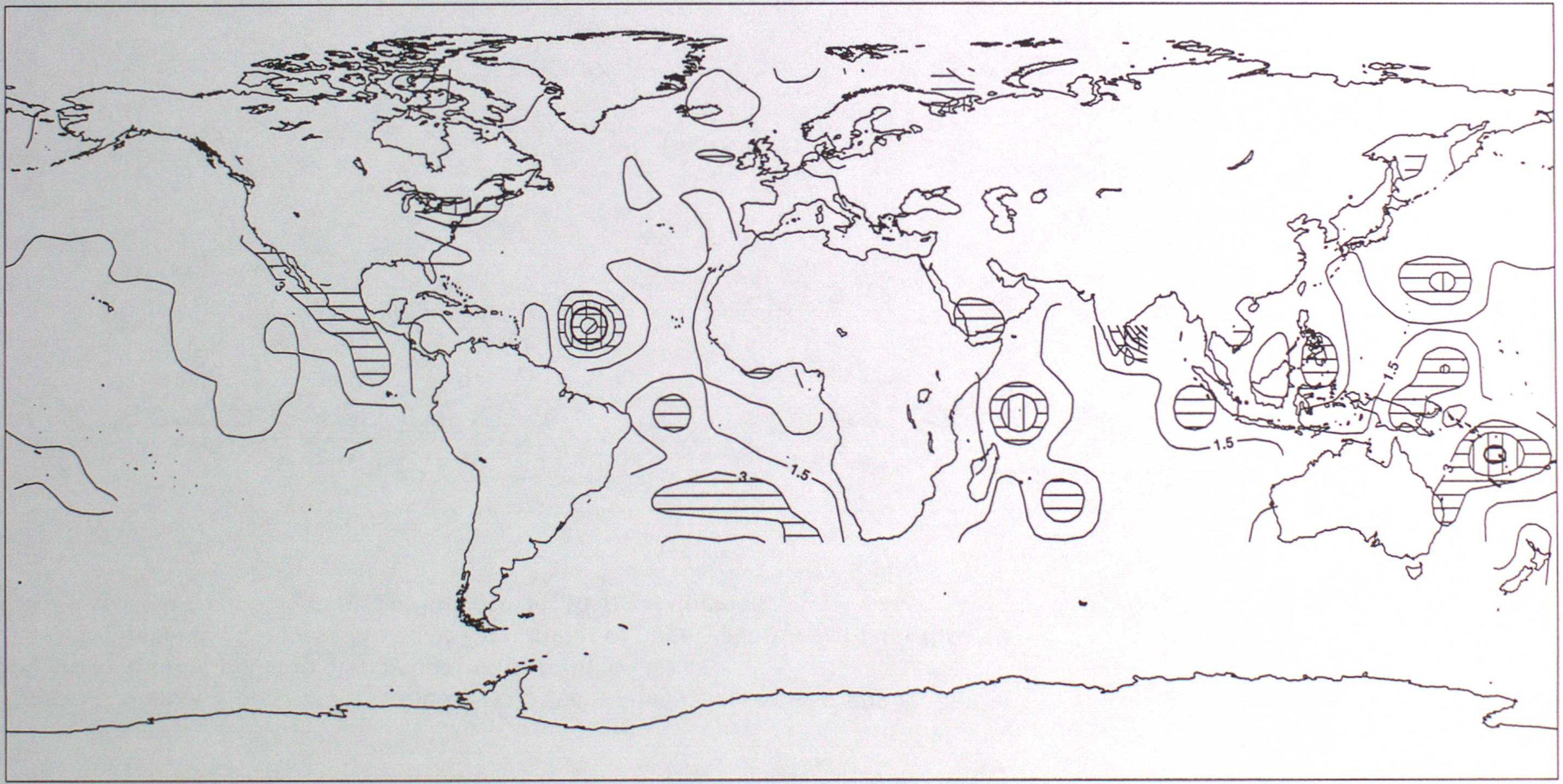
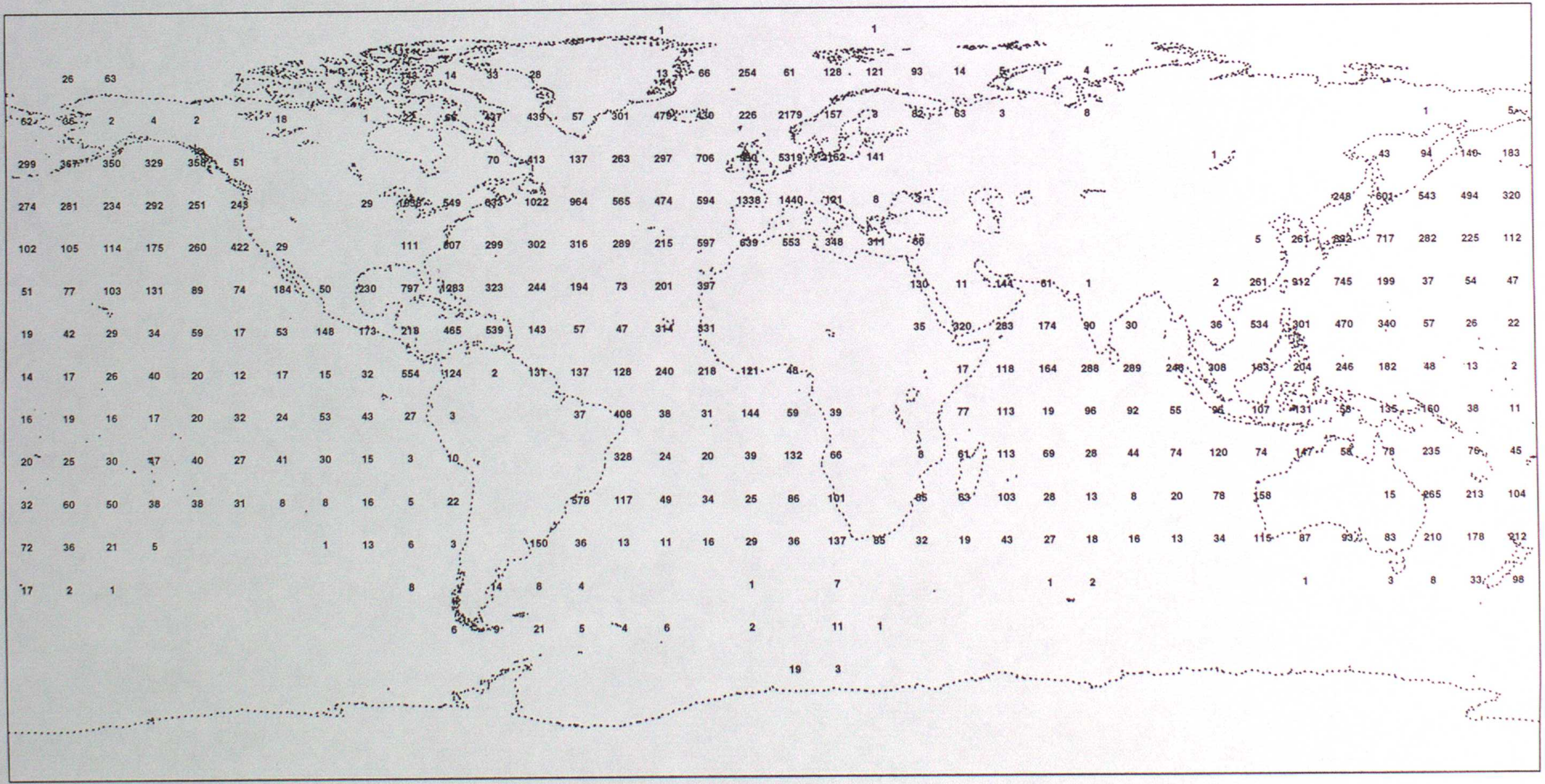
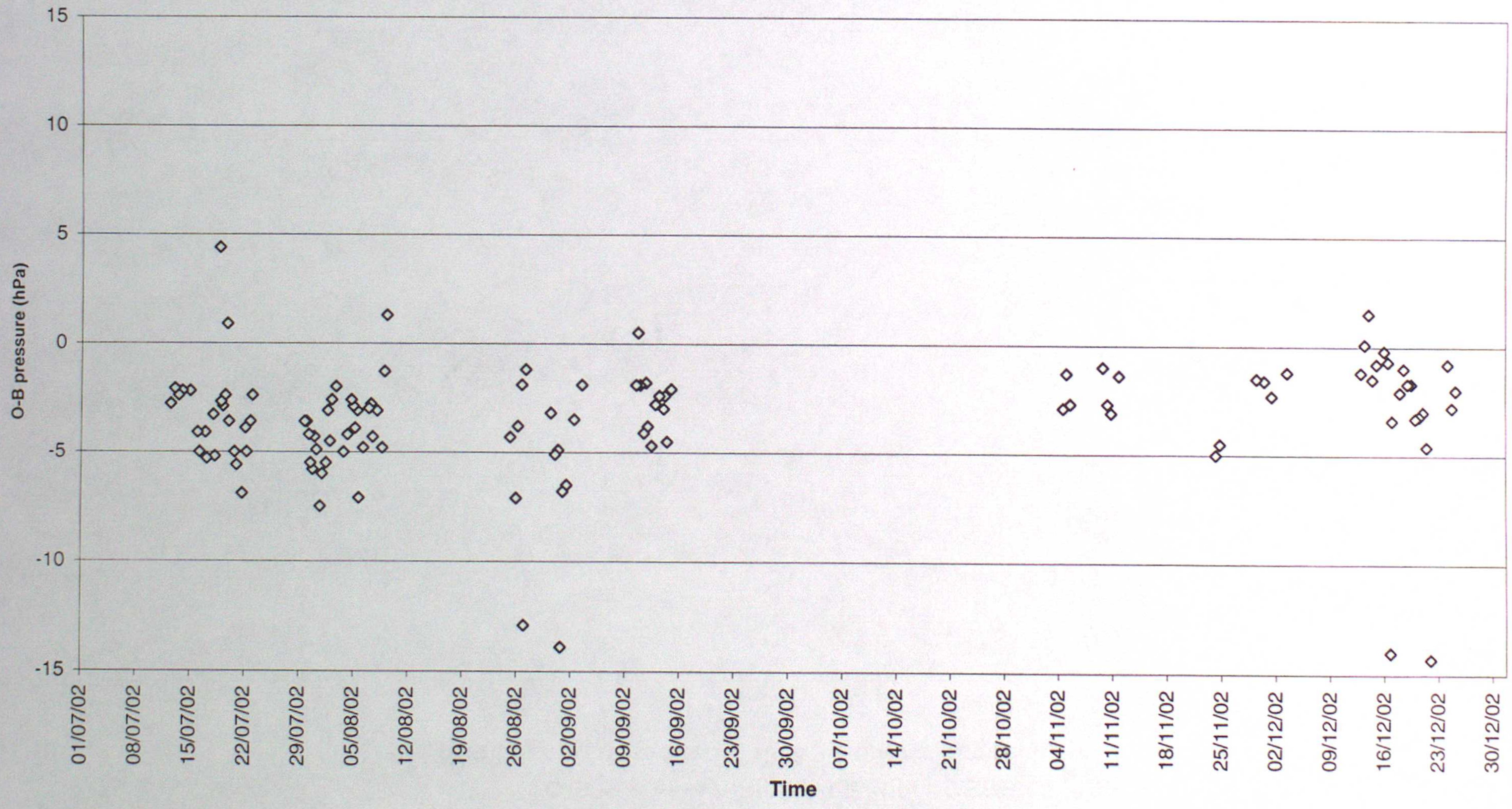


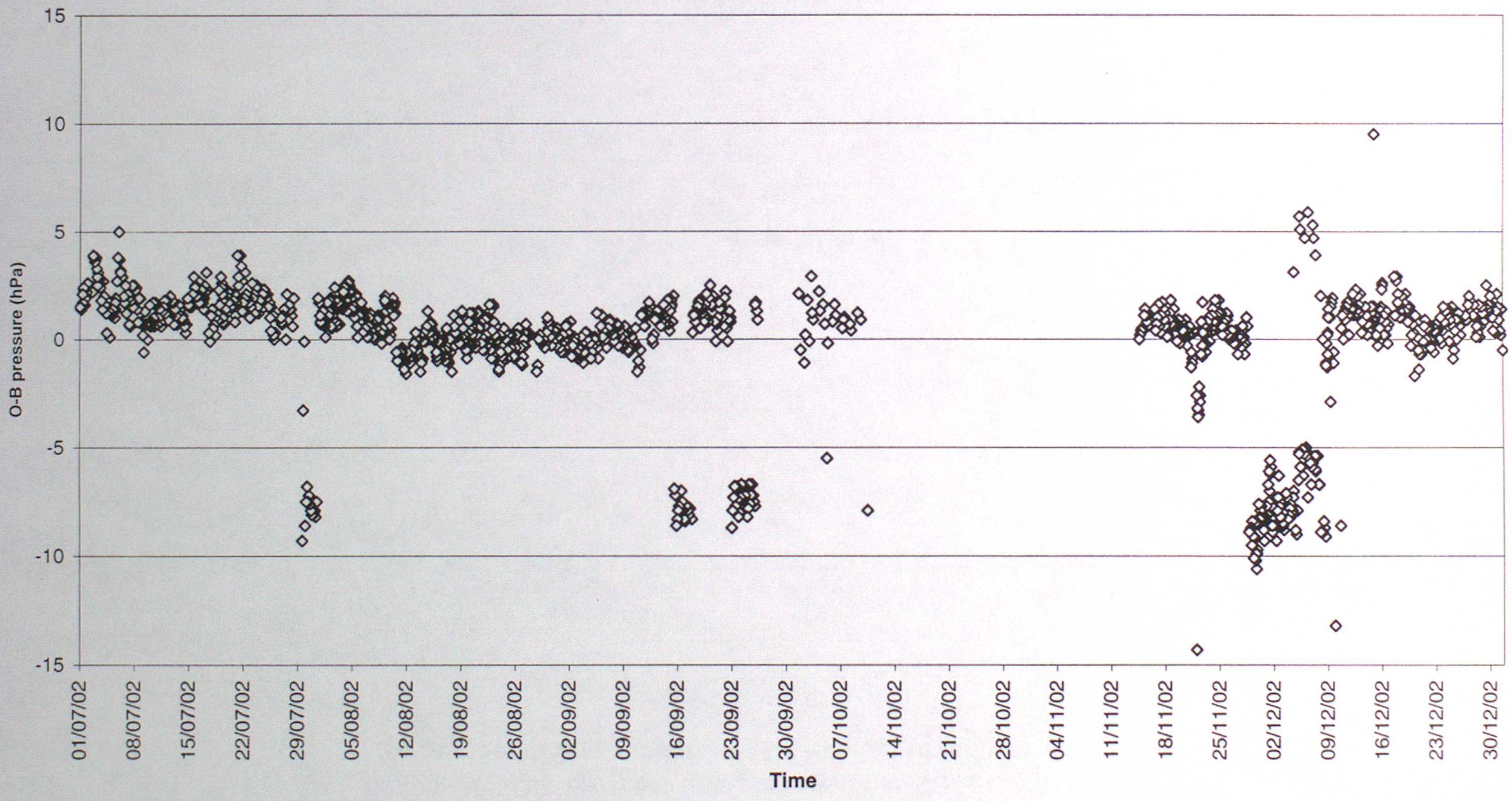
Figure 14:
Plot of the Number of Ship SST Observations. Date:- July - December 2002
Only observations passing quality control included


1 1
26 63 7 14 33 28 13 66 254 61 128 121 93 14 5 4
62 66 2 4 2 18 1 22 66 437 439 57 301 479 430 226 2179 157 3 82 83 3 8 1 5
299 367 350 329 358 51 70 413 137 263 297 706 490 5319 2162 141 1 43 94 140 183
274 281 234 292 251 243 29 1886 549 633 1022 964 565 474 594 1338 1440 121 8 248 601 543 494 320
102 105 114 175 260 422 29 111 807 299 302 316 289 215 597 639 553 348 311 66 5 261 292 717 282 225 112
51 77 103 131 89 74 184 50 230 797 1283 323 244 194 73 201 397 130 11 144 61 1 2 261 912 745 199 37 54 47
19 42 29 34 59 17 53 148 173 218 465 539 143 57 47 314 331 35 320 283 174 90 30 36 534 301 470 340 57 26 22
14 17 26 40 20 12 17 15 32 554 124 2 131 137 128 240 218 121 48 17 118 164 288 289 248 308 183 204 246 182 48 13 2
16 19 16 17 20 32 24 53 43 27 3 37 408 38 31 144 59 39 77 113 19 96 92 55 96 107 131 58 135 160 38 11
20 25 30 47 40 27 41 30 15 3 10 328 24 20 39 132 66 8 61 113 69 28 44 74 120 74 147 58 78 235 76 45
32 60 50 38 38 31 8 8 16 5 22 578 117 49 34 25 86 101 85 63 103 28 13 8 20 78 158 15 265 213 104
72 36 21 5 1 13 6 3 150 36 13 11 16 29 36 137 85 32 19 43 27 18 16 13 34 115 87 93 83 210 178 212
17 2 1 8 14 8 4 1 7 1 2 1 3 8 33 98
6 9 21 5 4 6 2 11 1
19 3

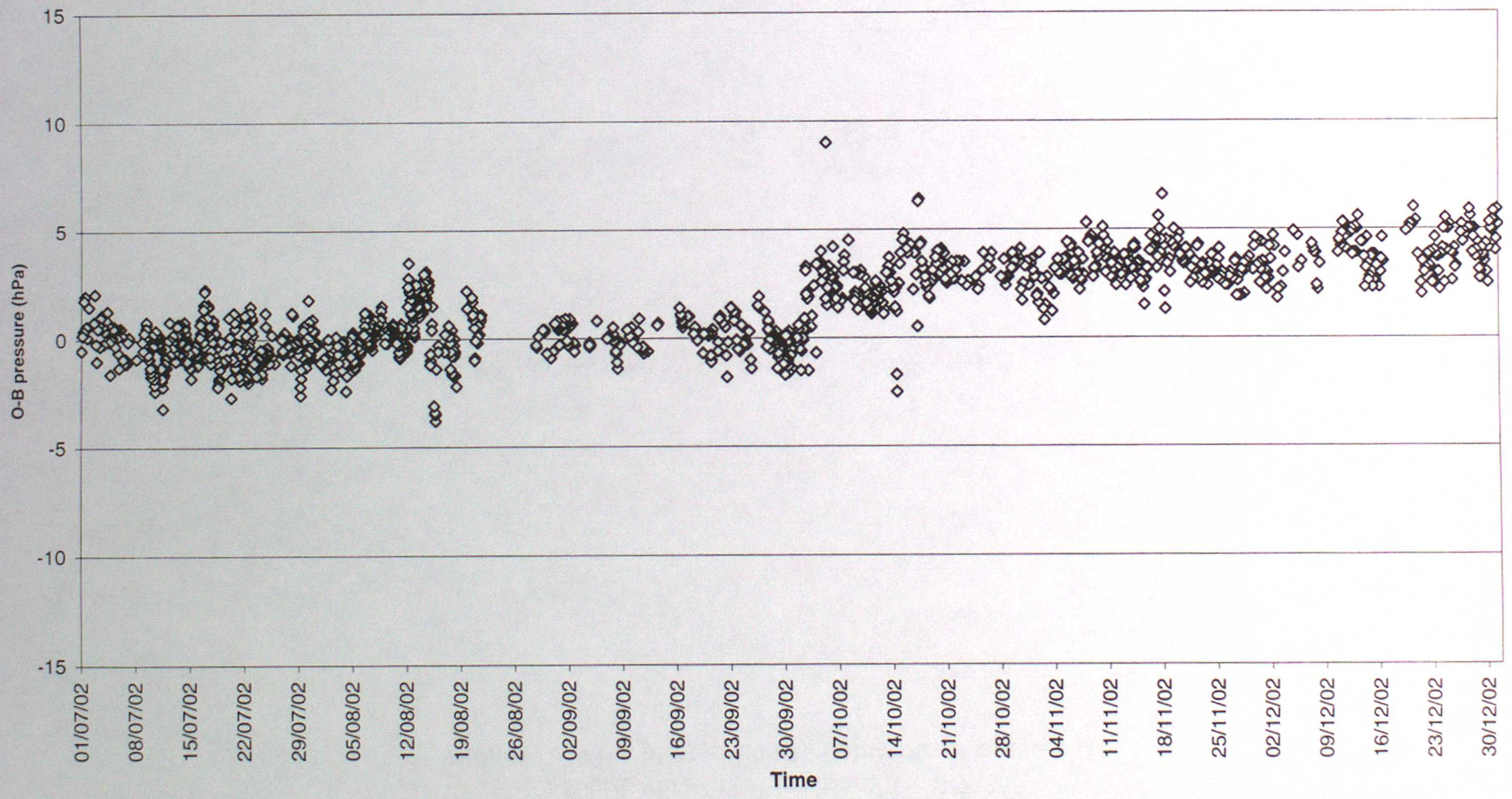
O-B pressure (hPa) for identifier BOAB
Number of obs. plotted = 114   Number of outliers = 1



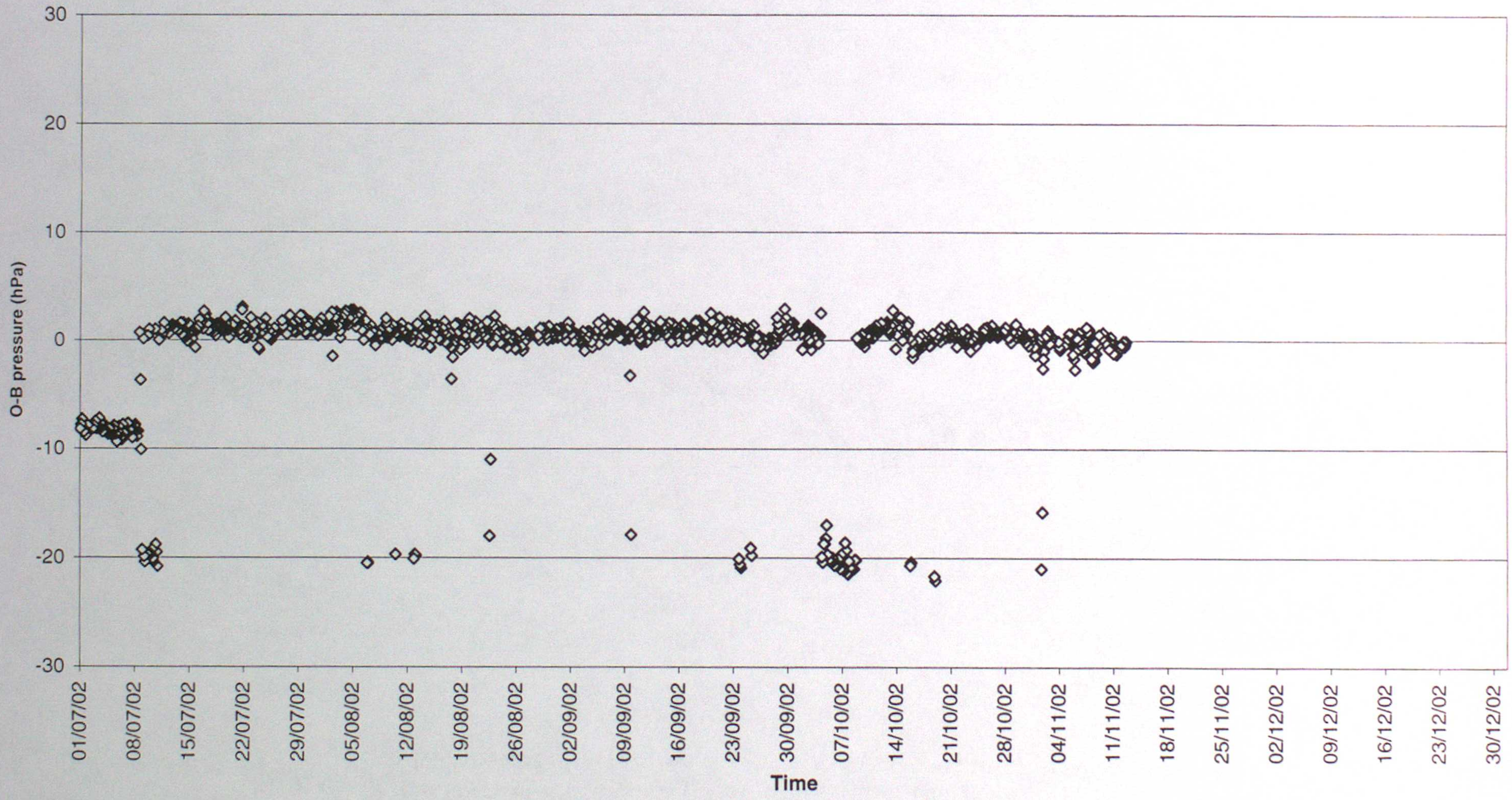
O-B pressure (hPa) for identifier CGDS
Number of obs. plotted = 1328   Number of outliers = 22

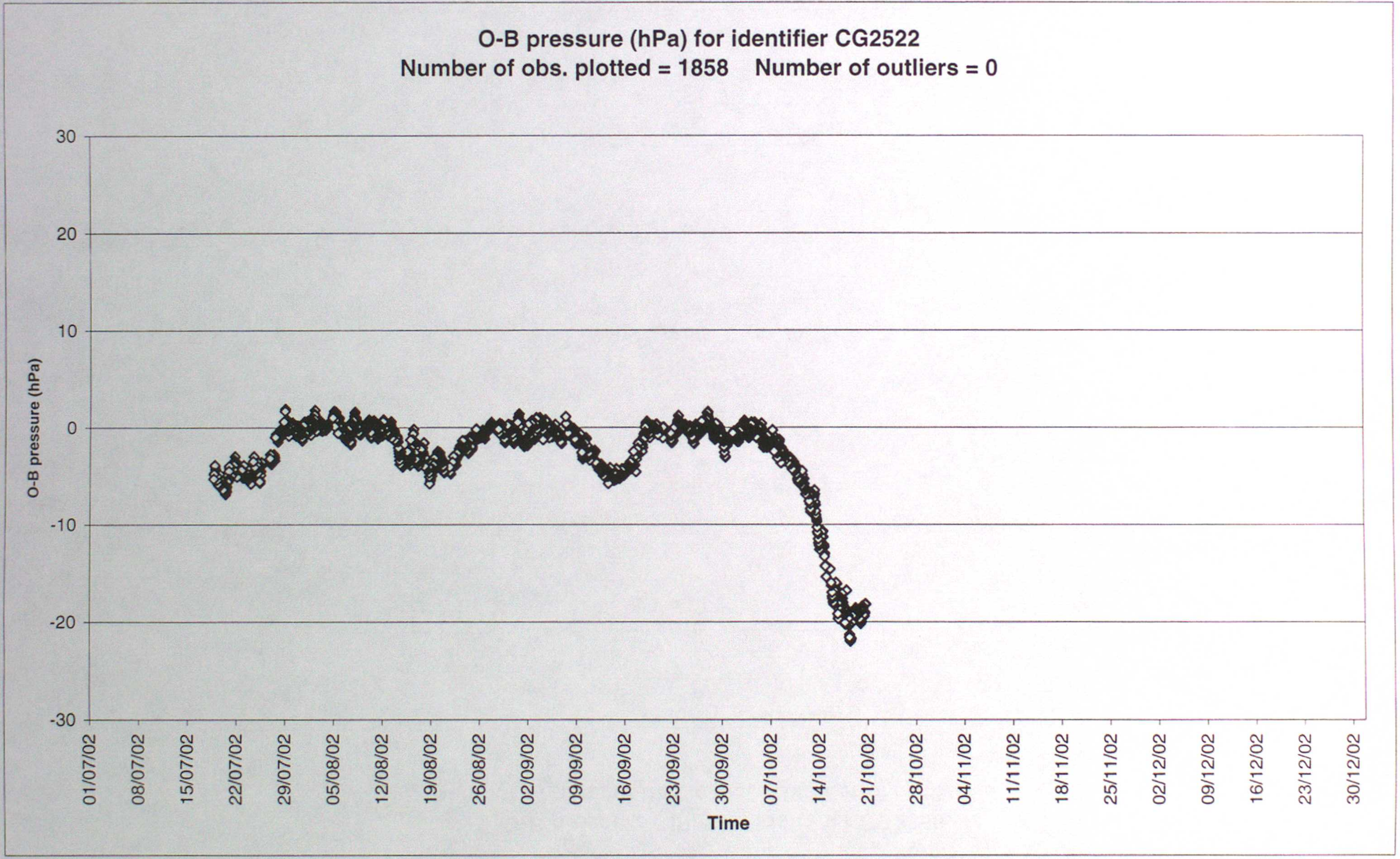


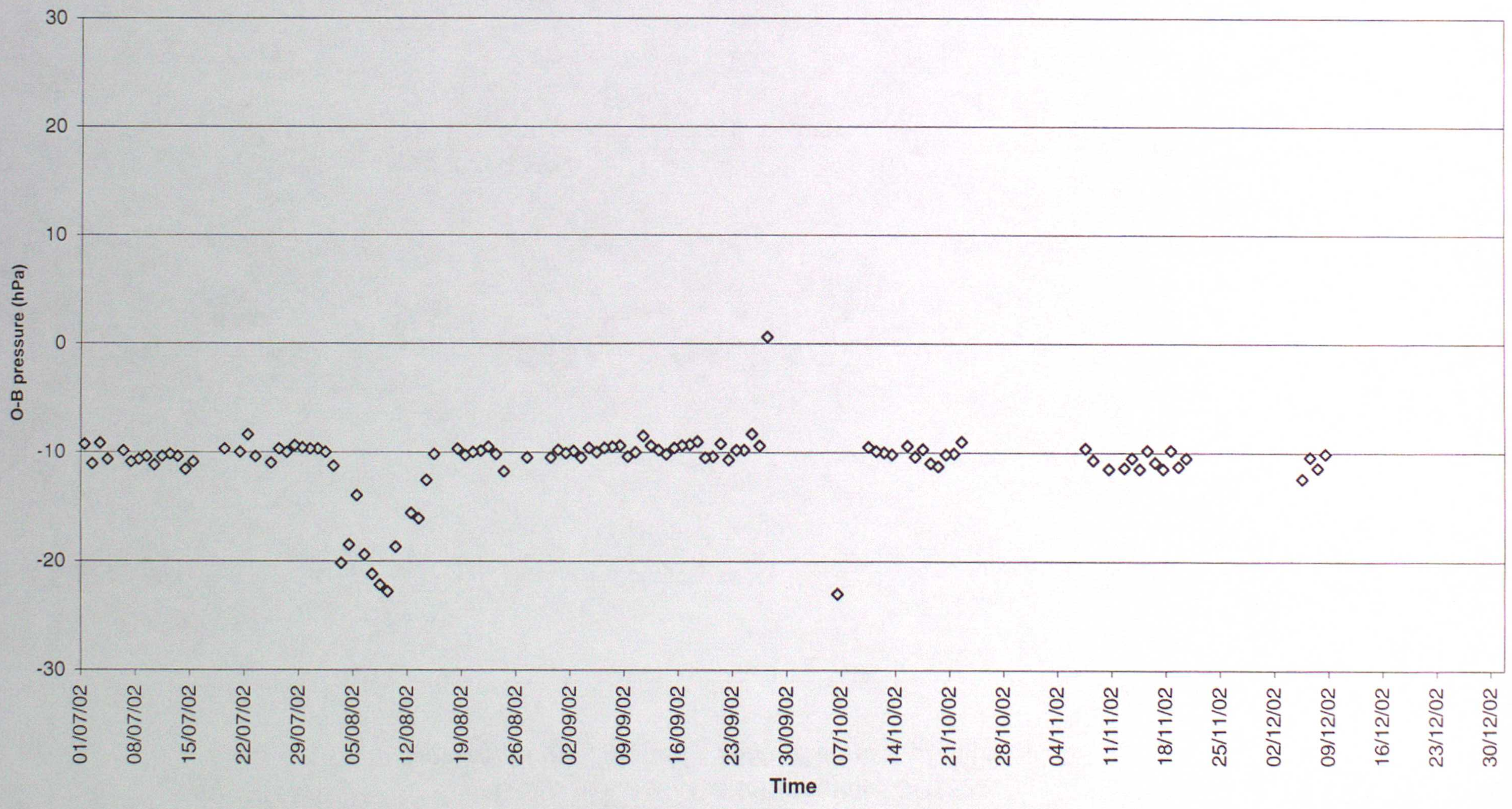
O-B pressure (hPa) for identifier CGDX
Number of obs. plotted = 1402   Number of outliers = 0



O-B pressure (hPa) for identifier CG2350
Number of obs. plotted = 1107   Number of outliers = 0

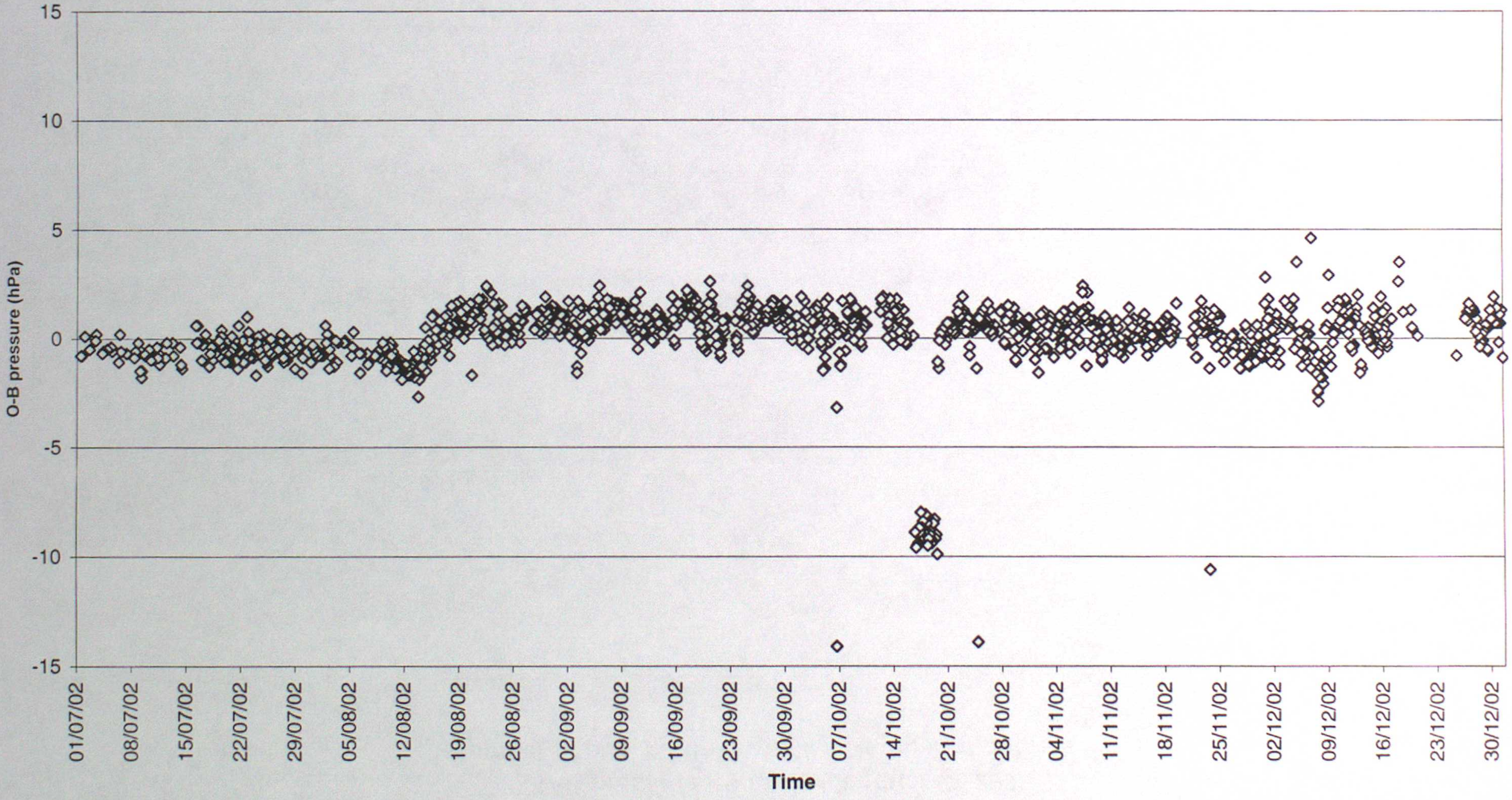


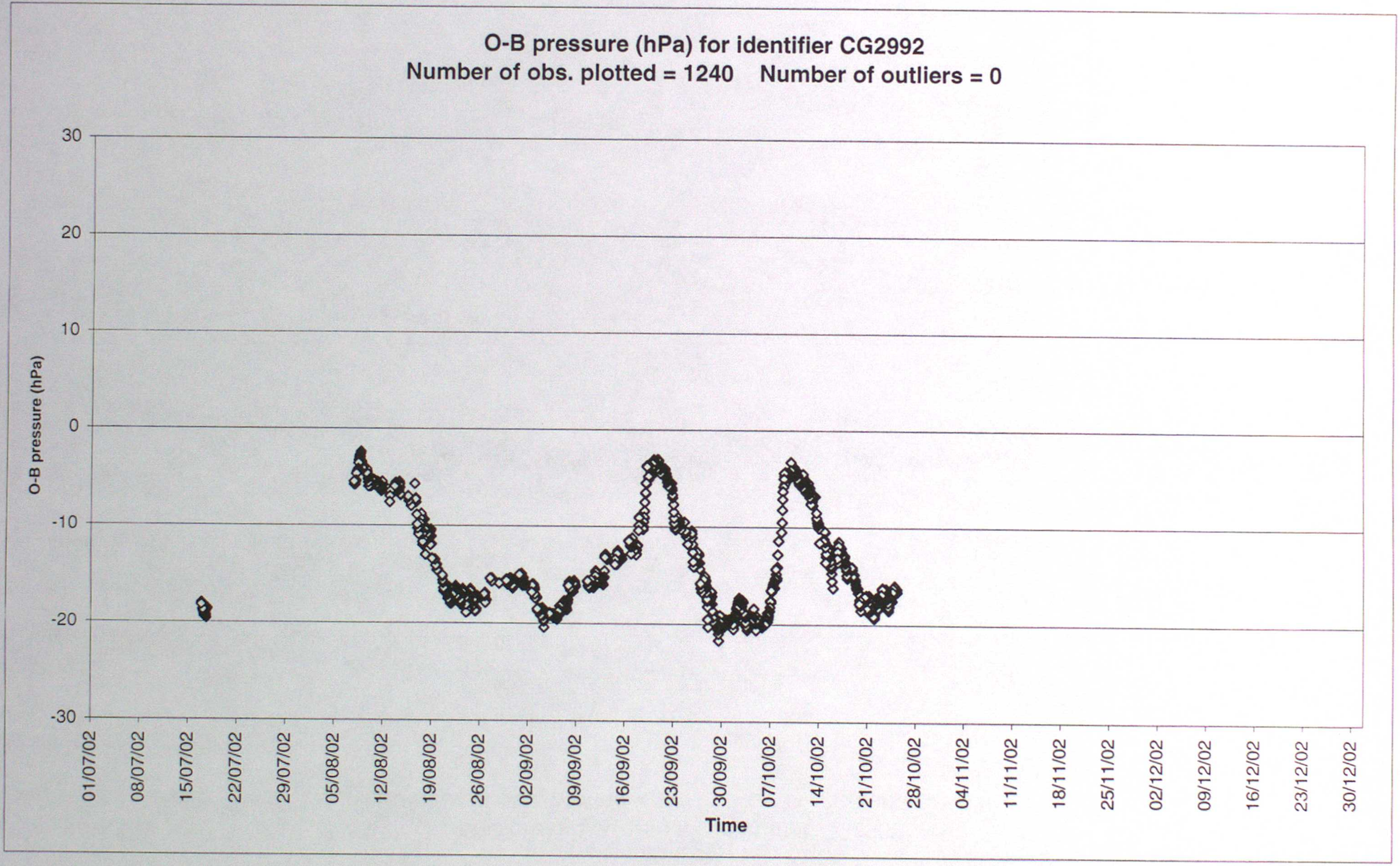

O-B pressure (hPa) for identifier CG2522
Number of obs. plotted = 1858   Number of outliers = 0



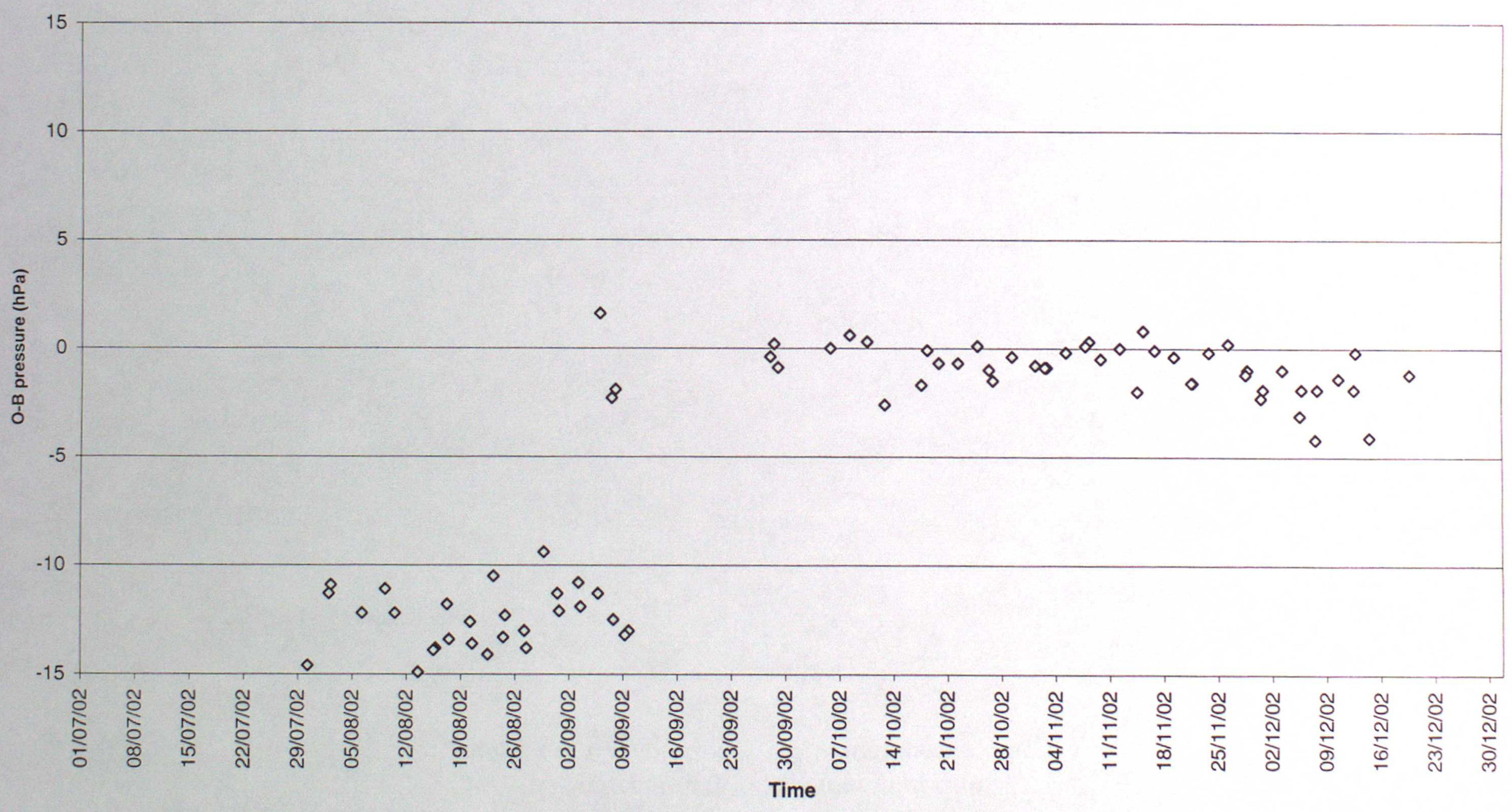
O-B pressure (hPa) for identifier CG2556
Number of obs. plotted = 105   Number of outliers = 6

O-B pressure (hPa) for identifier CG2960
Number of obs. plotted = 1231   Number of outliers = 21

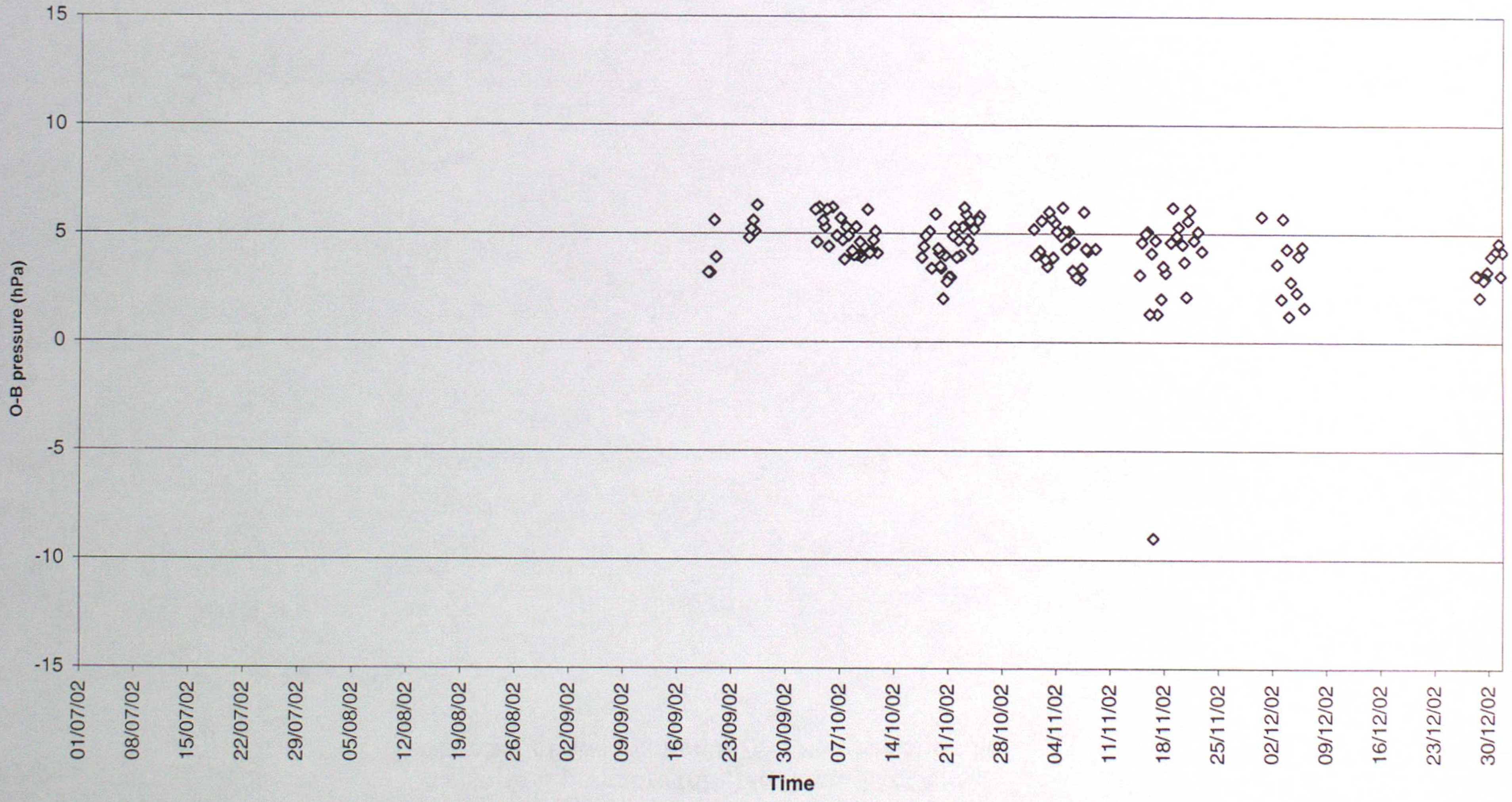




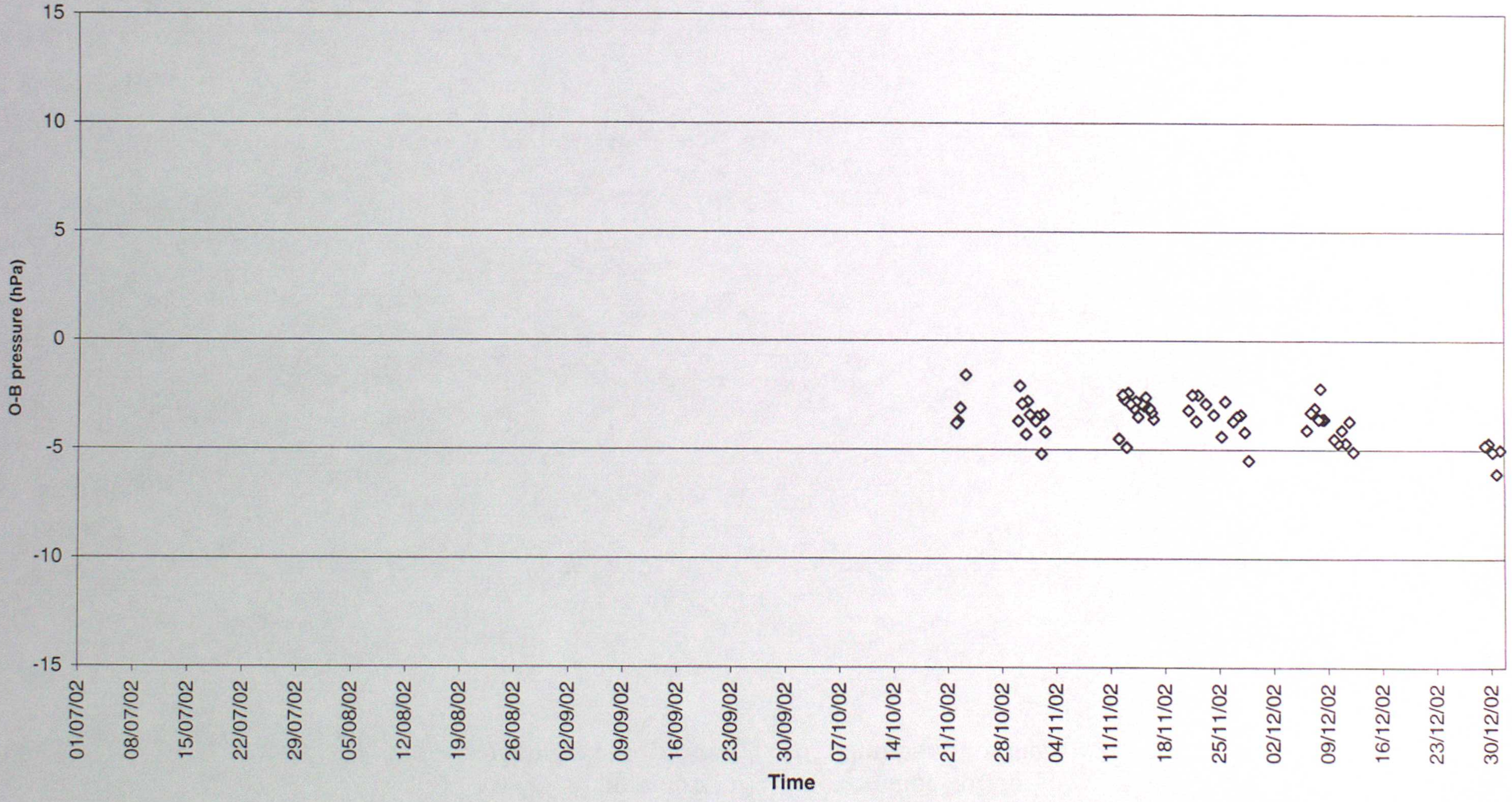
O-B pressure (hPa) for identifier CG2992
Number of obs. plotted = 1240   Number of outliers = 0



O-B pressure (hPa) for identifier C6FN4
Number of obs. plotted = 76   Number of outliers = 0

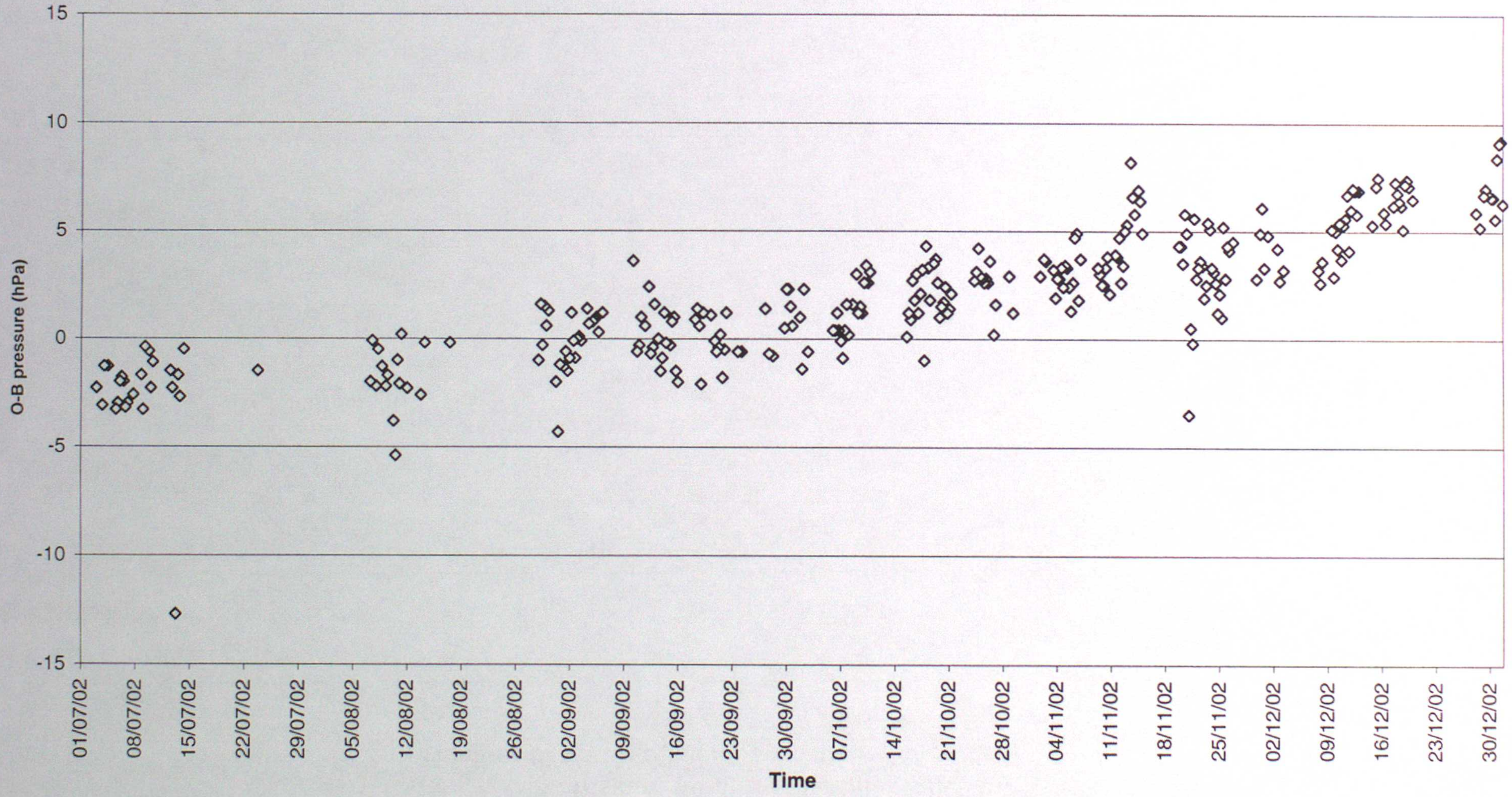


O-B pressure (hPa) for identifier C6KD6
Number of obs. plotted = 137   Number of outliers = 0

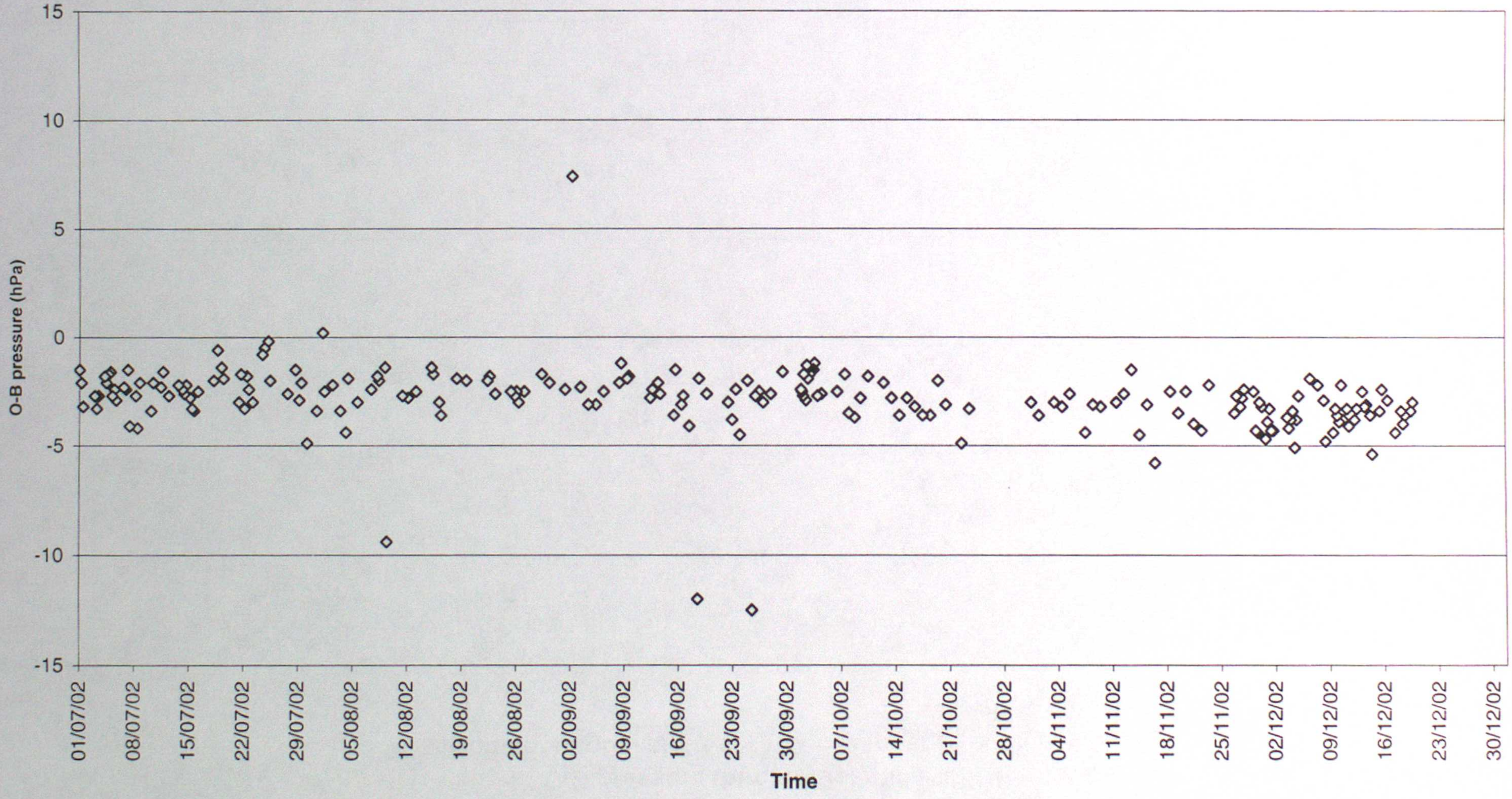


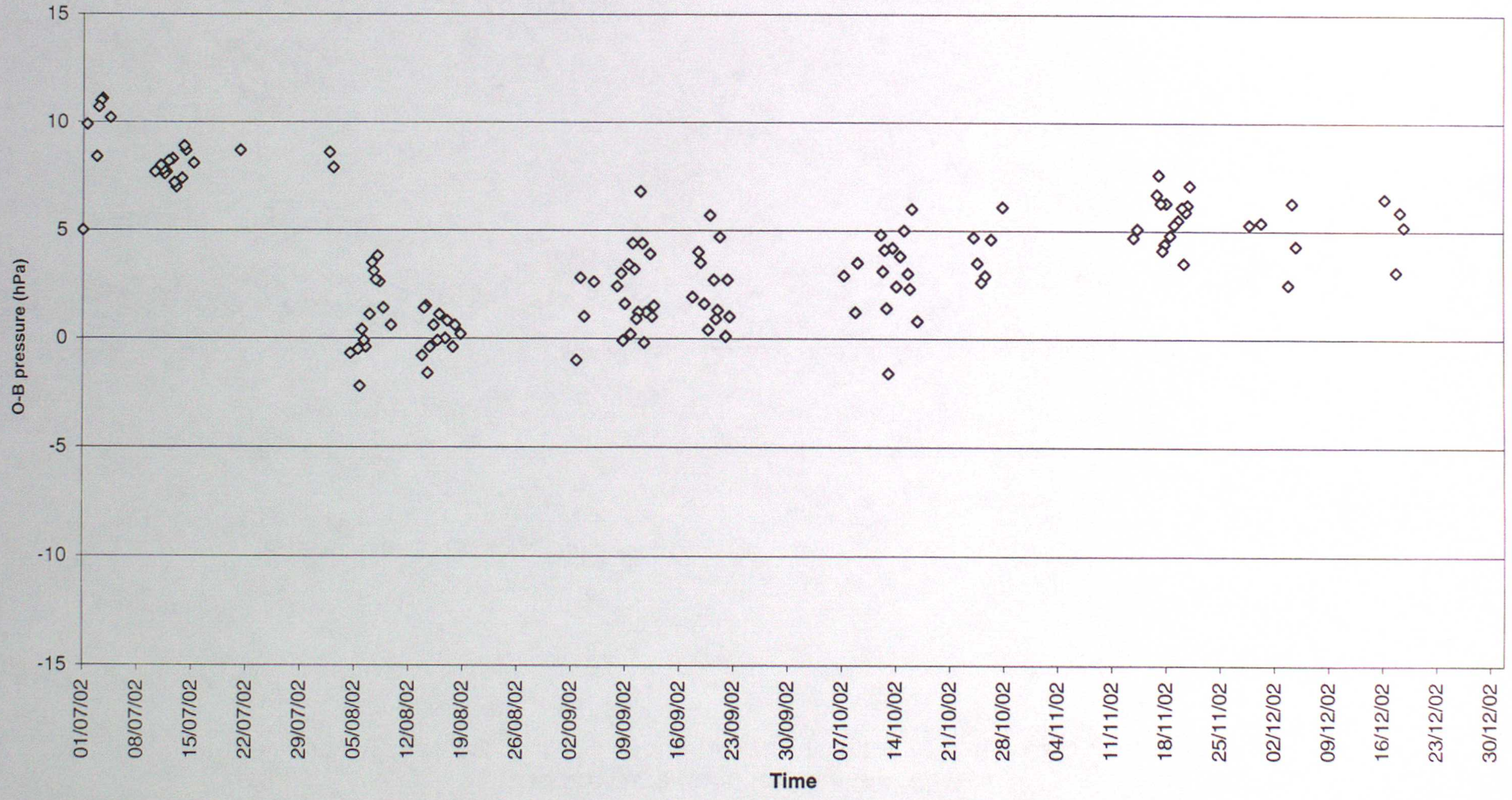
O-B pressure (hPa) for identifier C6KE3
Number of obs. plotted = 61   Number of outliers = 0

O-B pressure (hPa) for identifier C6LU3
Number of obs. plotted = 286   Number of outliers = 2



O-B pressure (hPa) for identifier C6MX4
Number of obs. plotted = 218   Number of outliers = 0

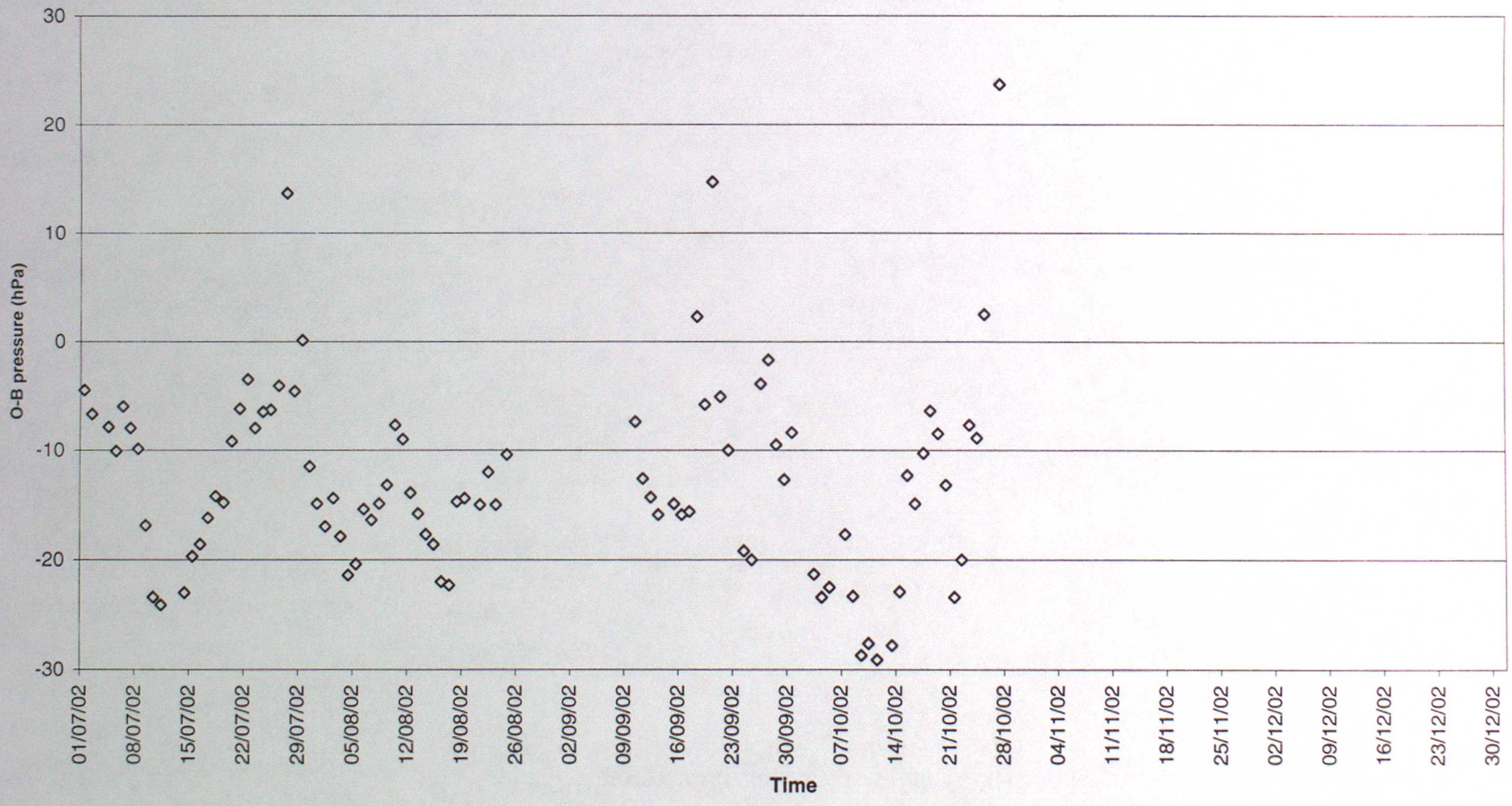




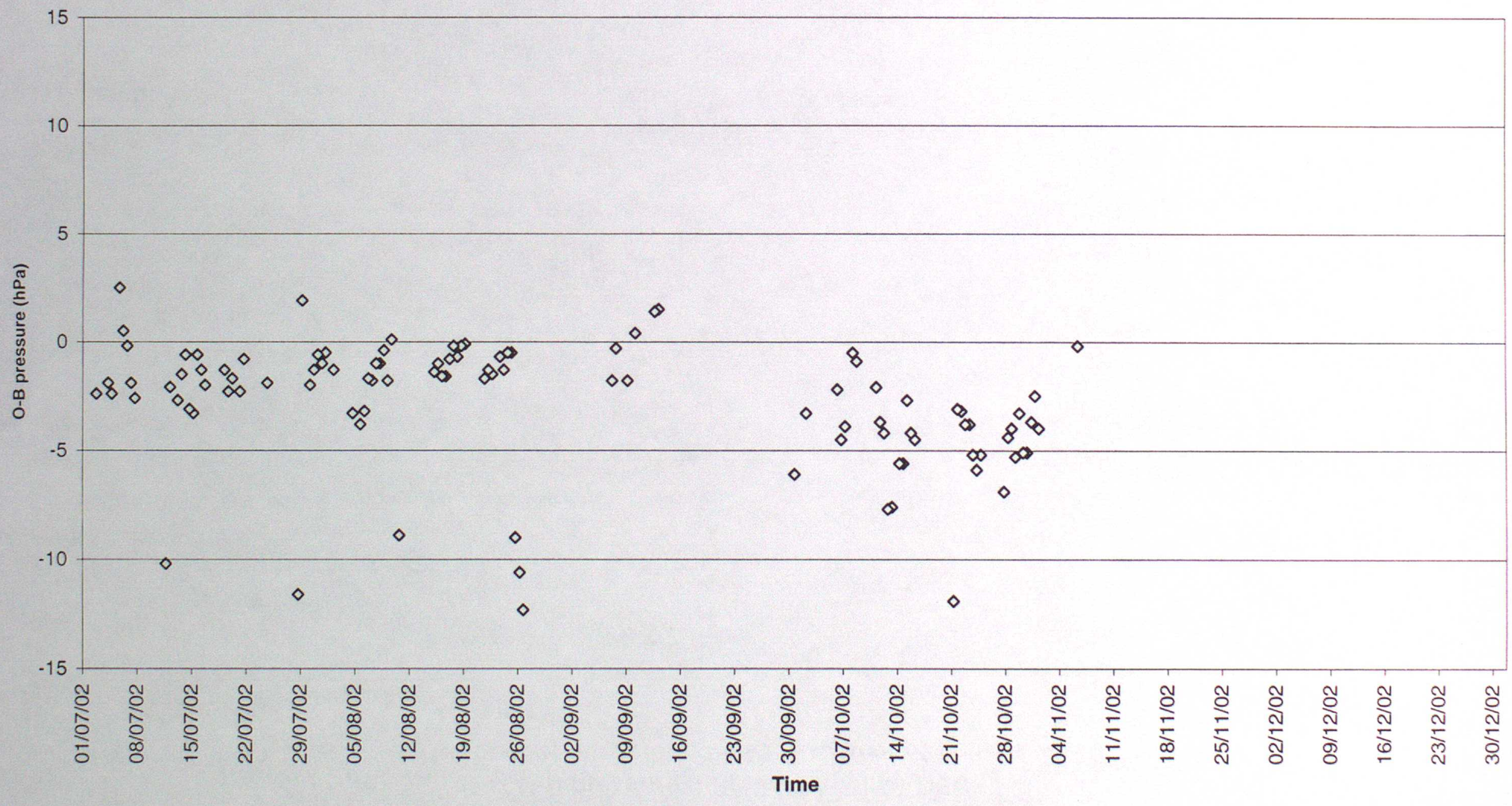
O-B pressure (hPa) for identifier C6QK

Number of obs. plotted = 131 Number of outliers = 0

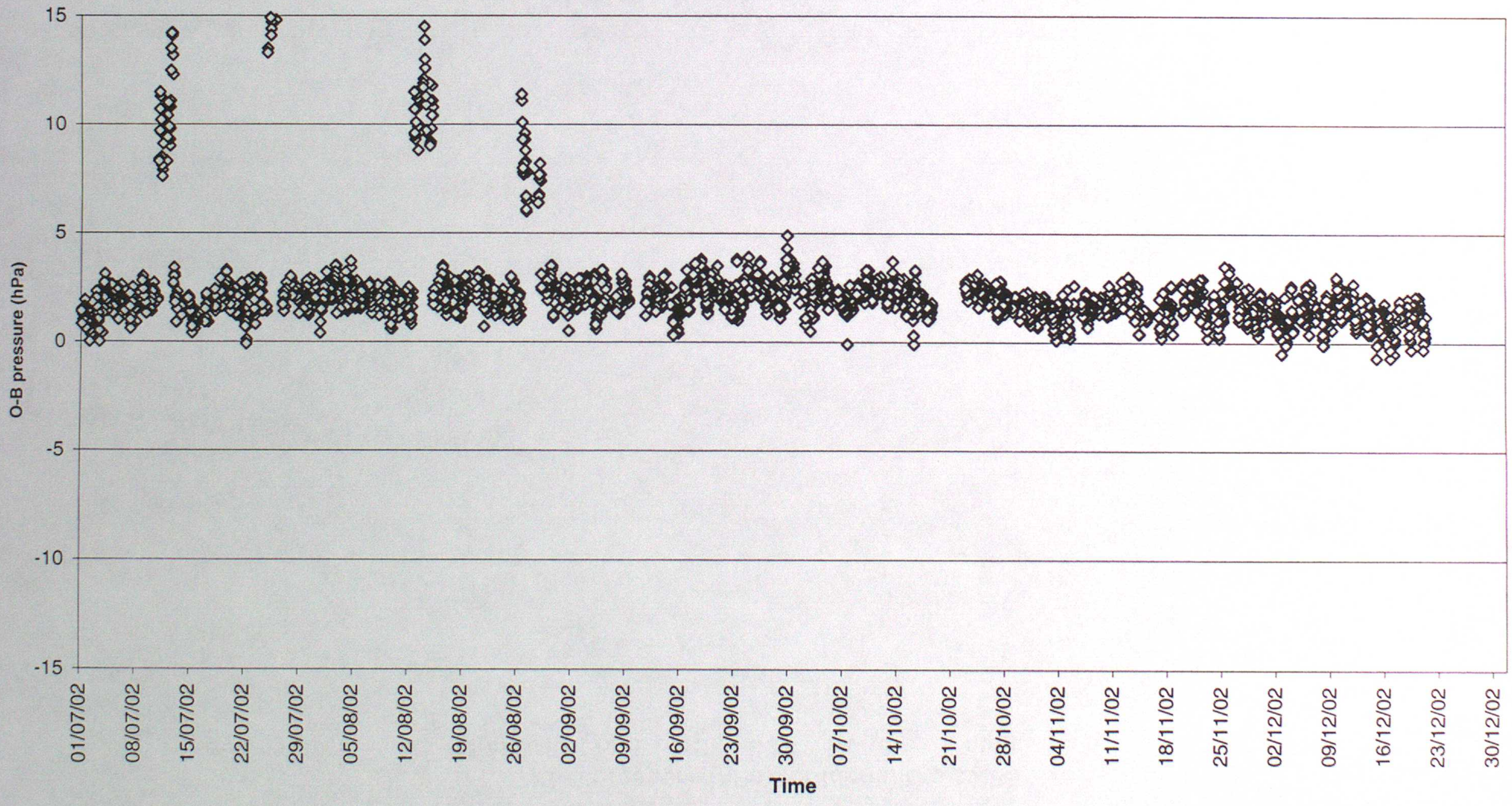
O-B pressure (hPa) for identifier DEOF
Number of obs. plotted = 92   Number of outliers = 1

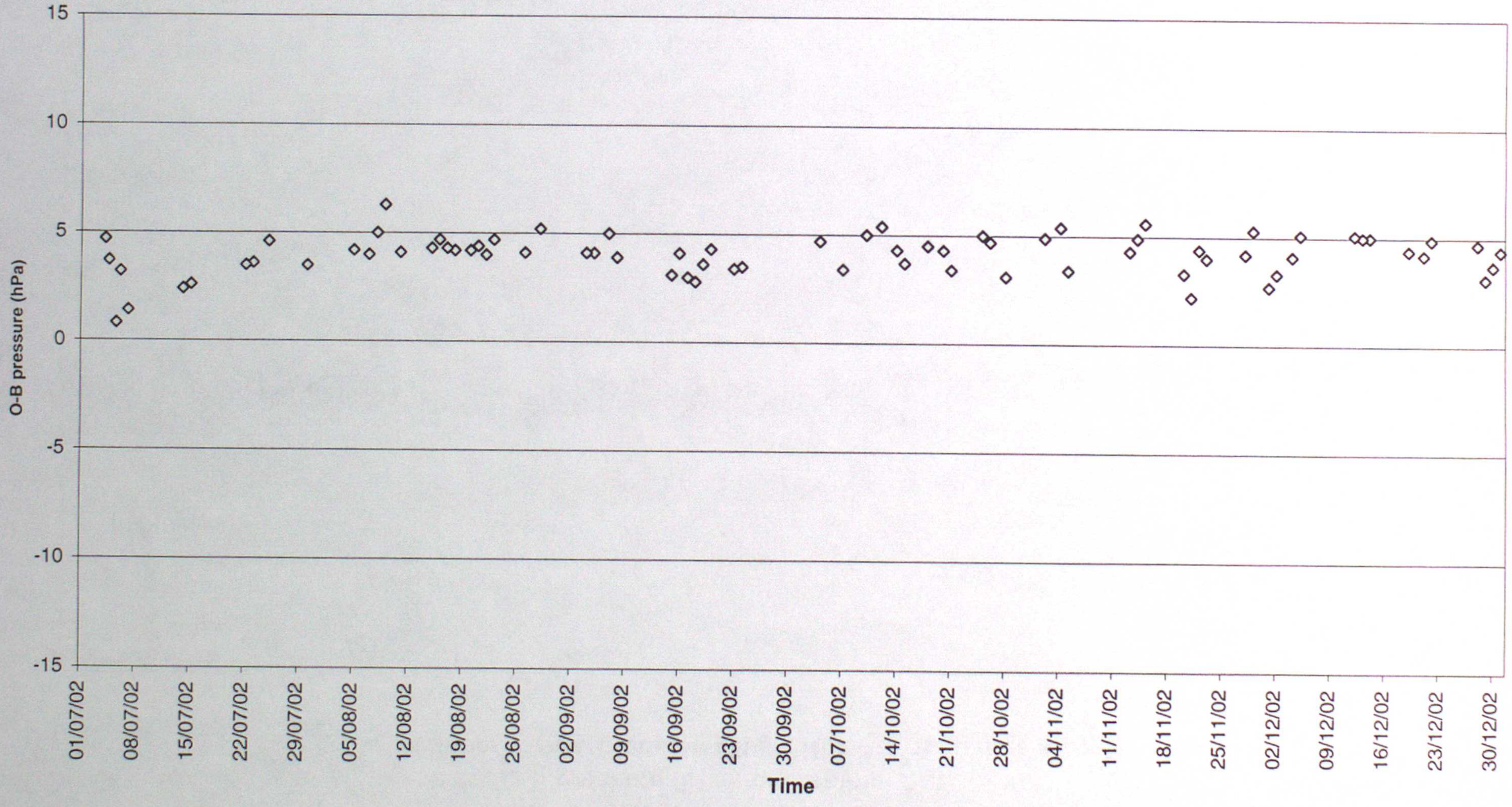


O-B pressure (hPa) for identifier D5XH
Number of obs. plotted = 104   Number of outliers = 1

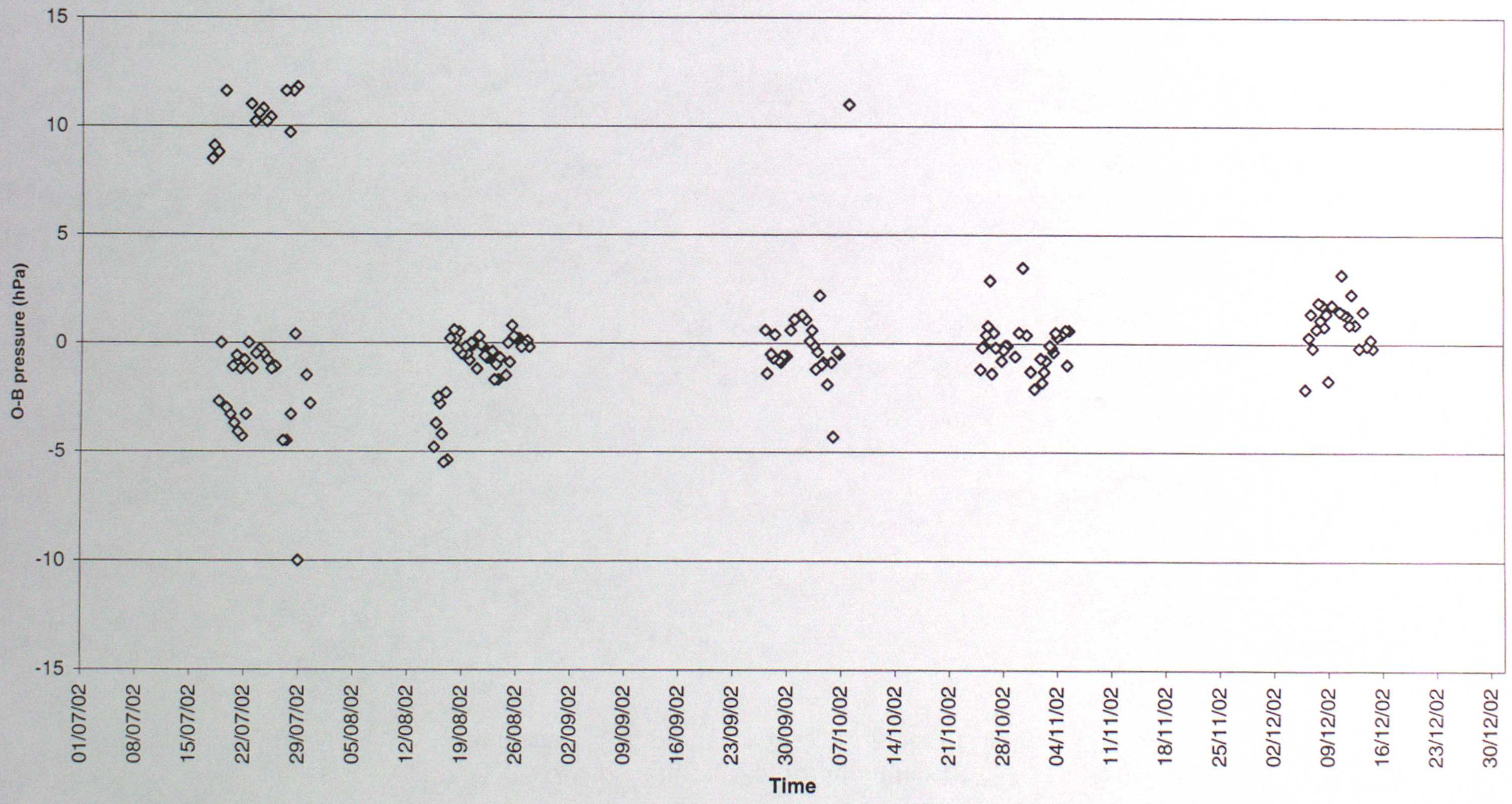


O-B pressure (hPa) for identifier ELWX5
Number of obs. plotted = 2508   Number of outliers = 24

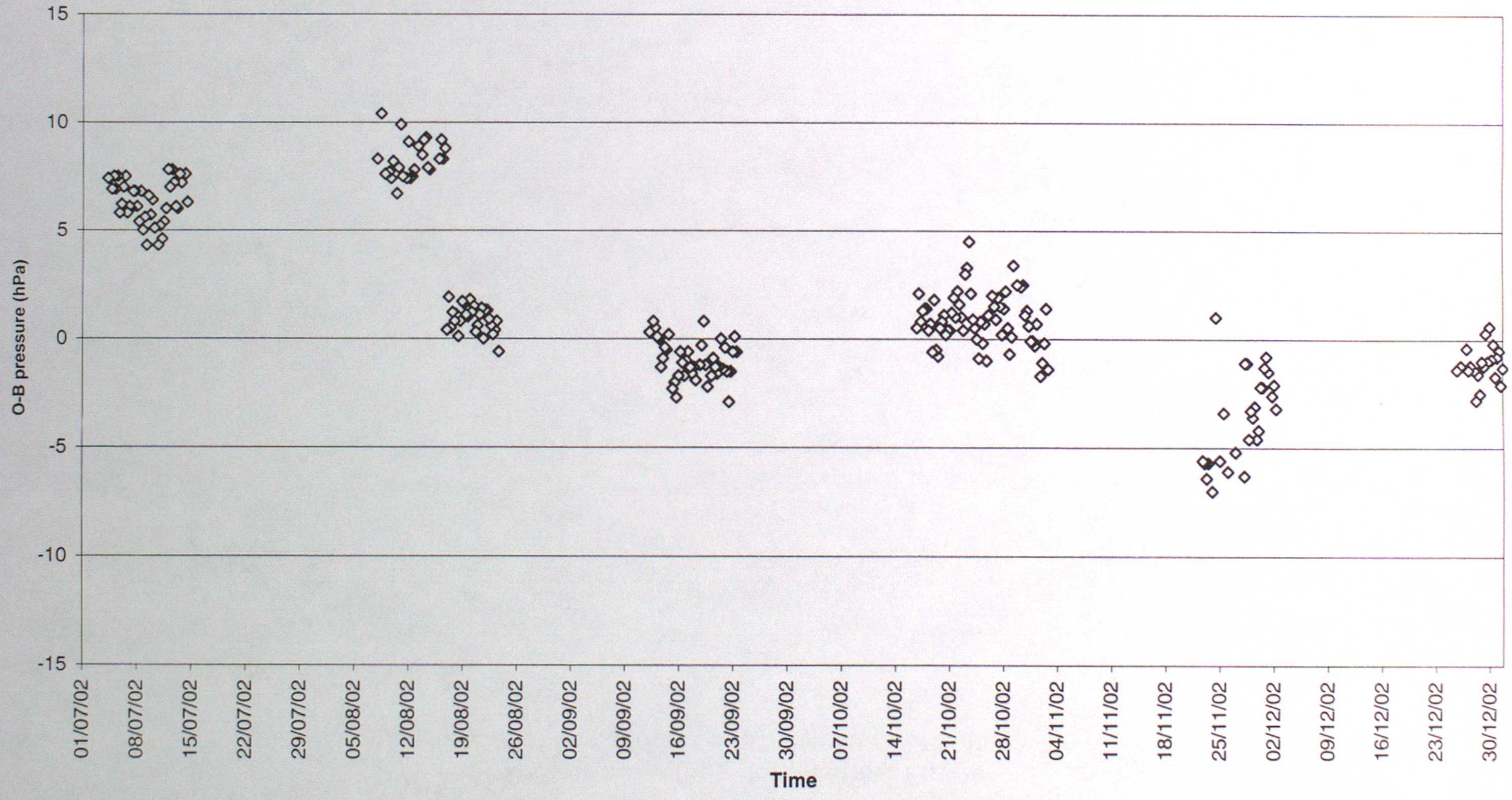




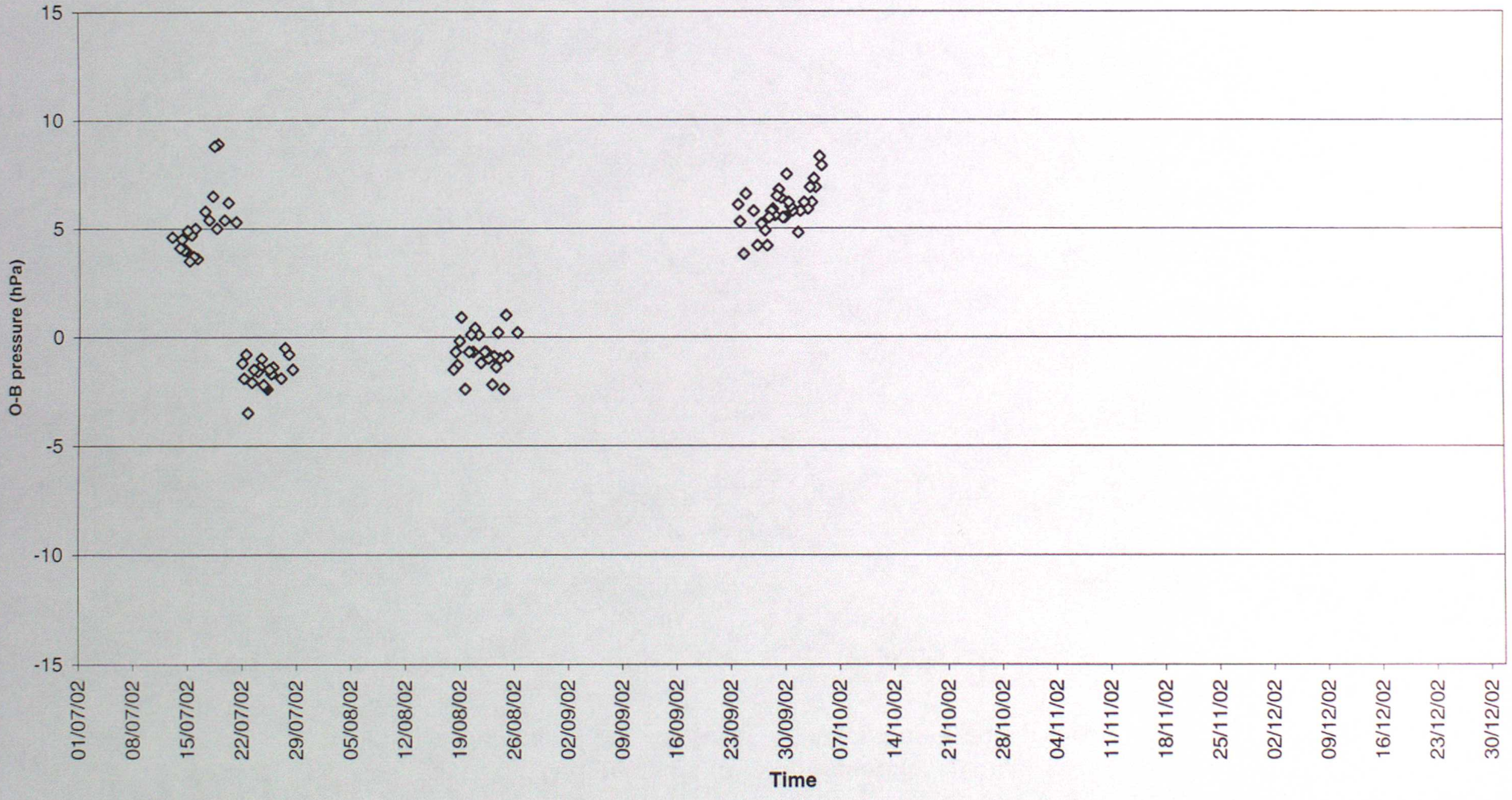
O-B pressure (hPa) for identifier ELXB5
Number of obs. plotted = 76   Number of outliers = 0


O-B pressure (hPa) for identifier ELYP8
Number of obs. plotted = 167   Number of outliers = 0

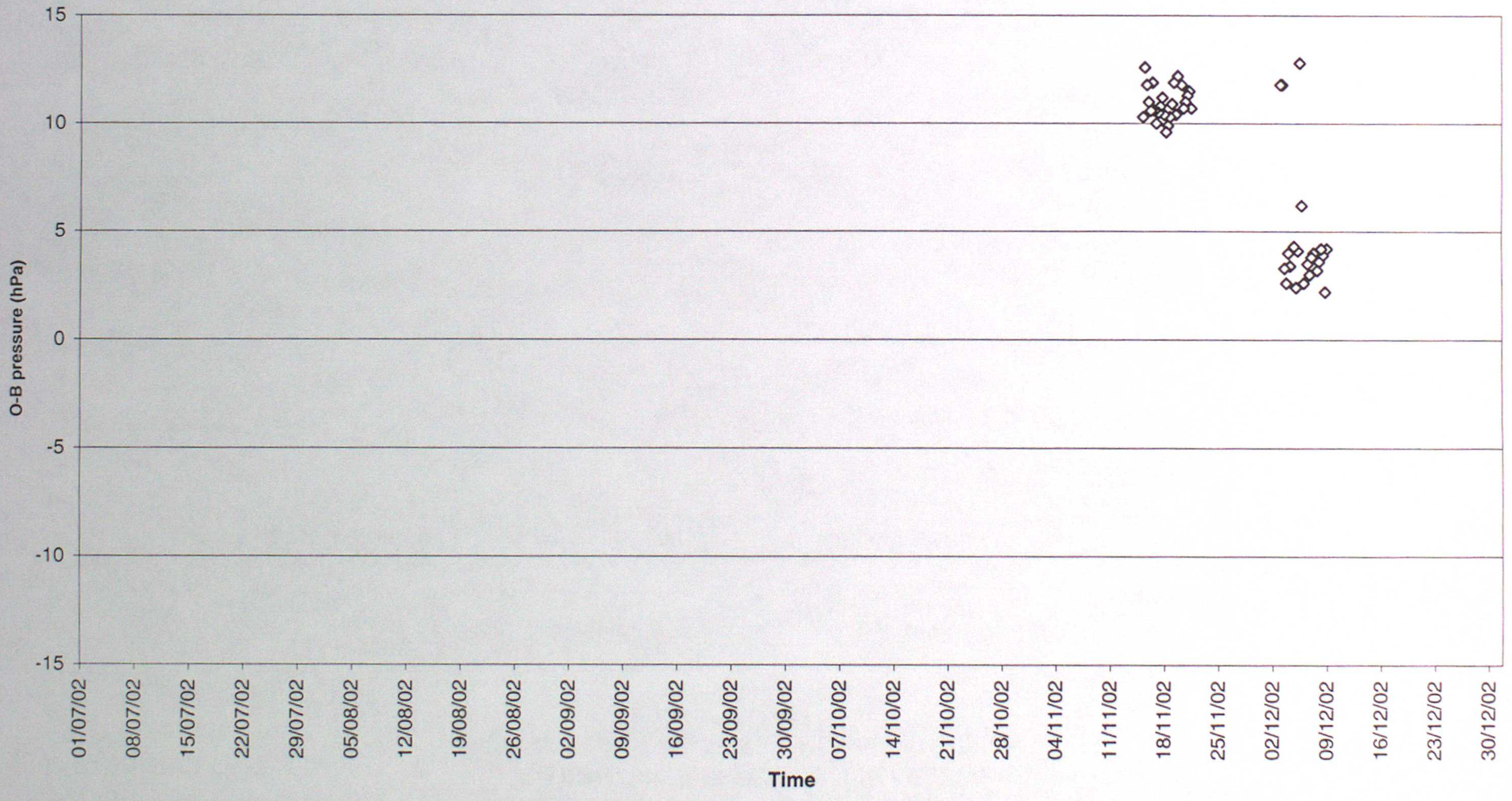
O-B pressure (hPa) for identifier ELZF7
Number of obs. plotted = 247   Number of outliers = 0



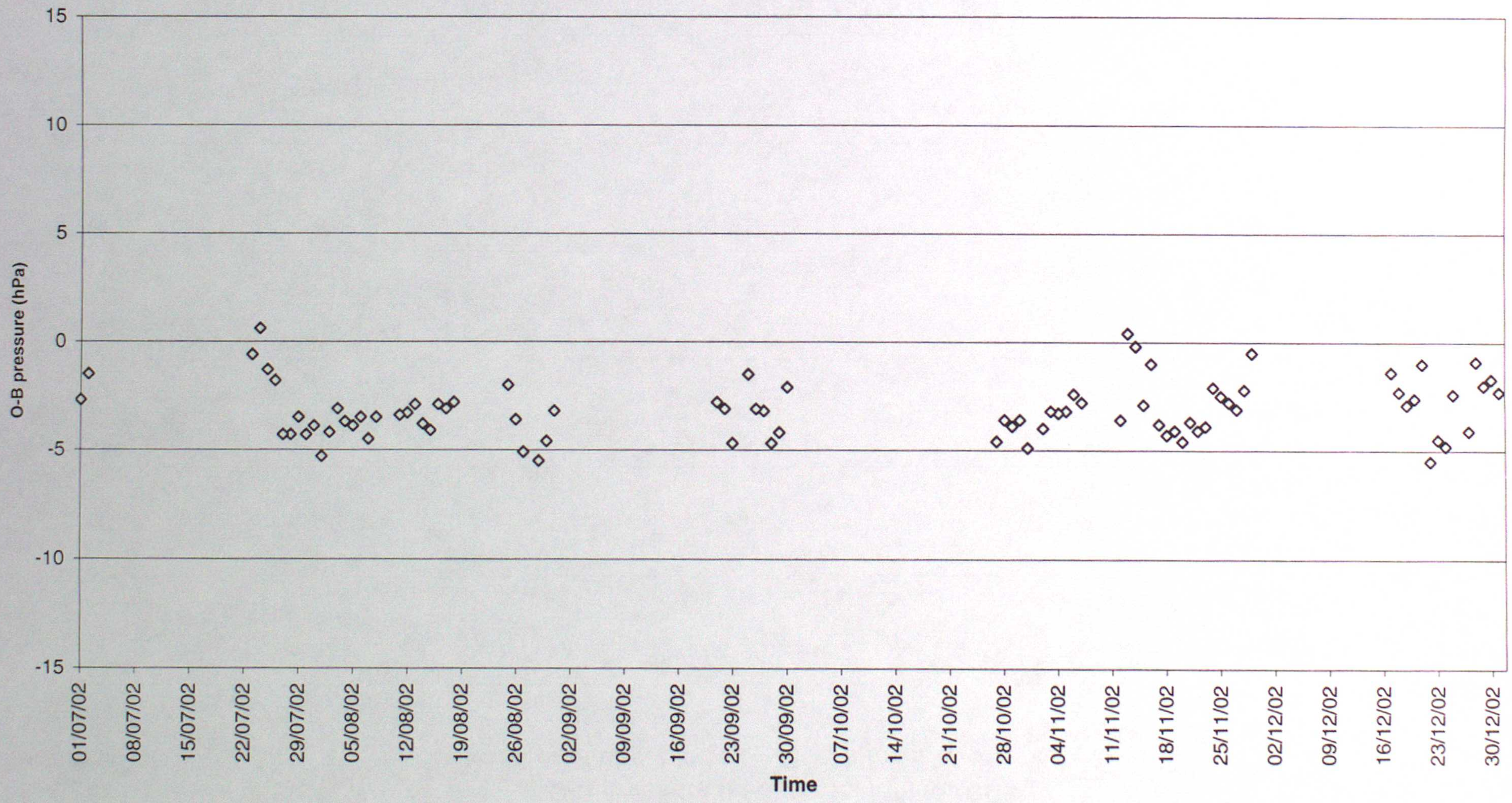
O-B pressure (hPa) for identifier ELZW3
Number of obs. plotted = 95   Number of outliers = 0



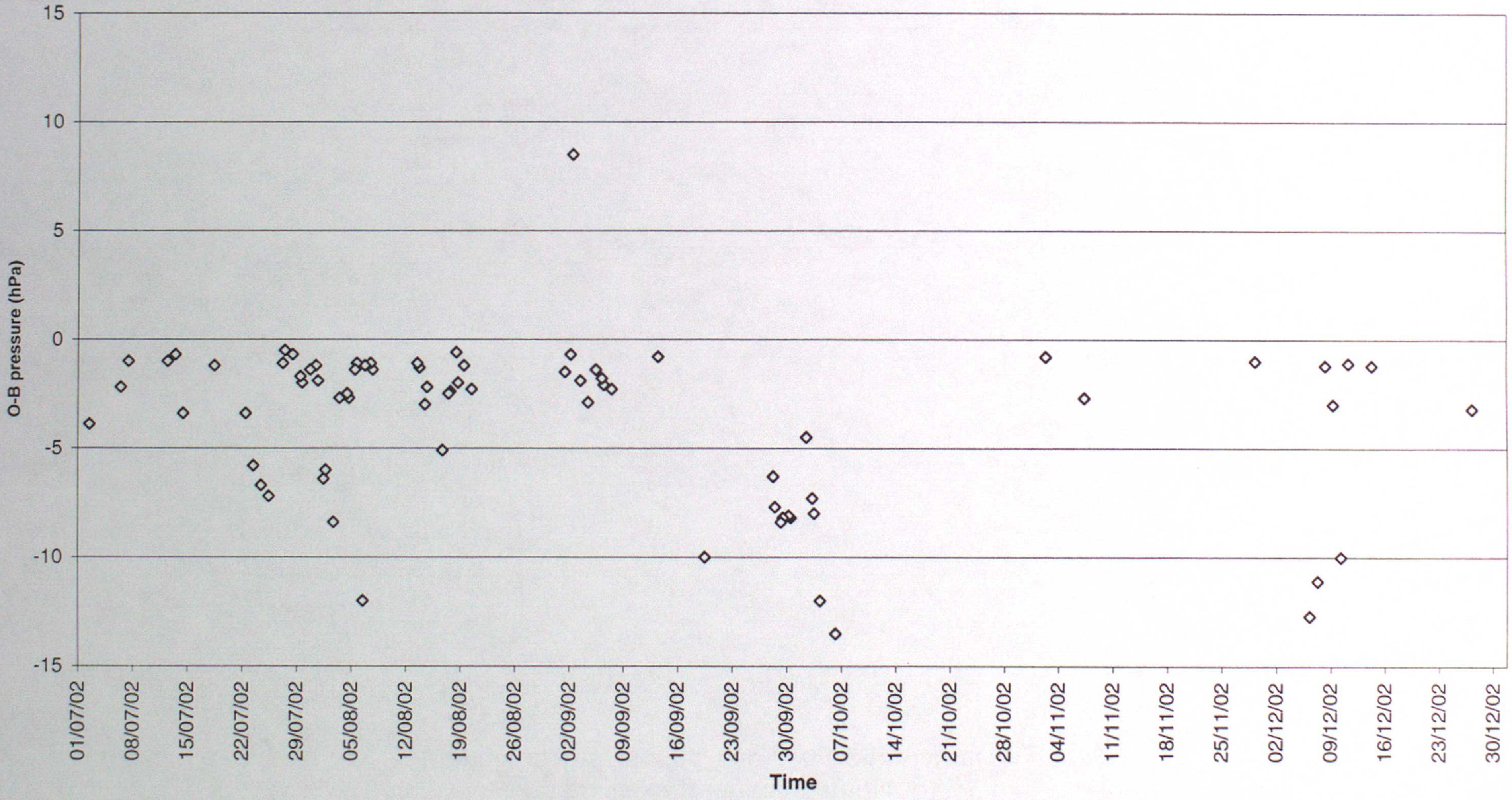
O-B pressure (hPa) for identifier HODM
Number of obs. plotted = 47   Number of outliers = 0

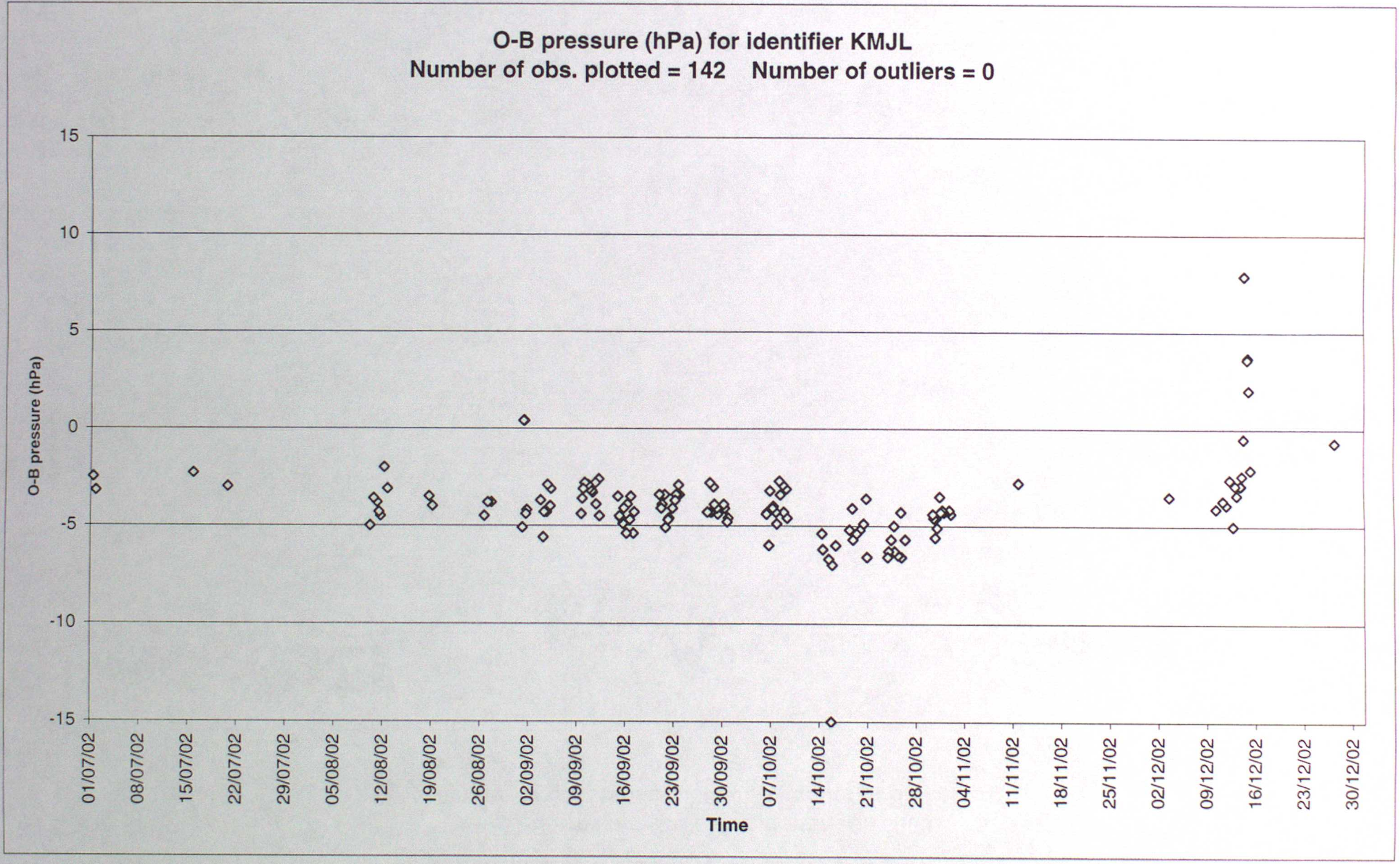


O-B pressure (hPa) for identifier H9LA
Number of obs. plotted = 85   Number of outliers = 1



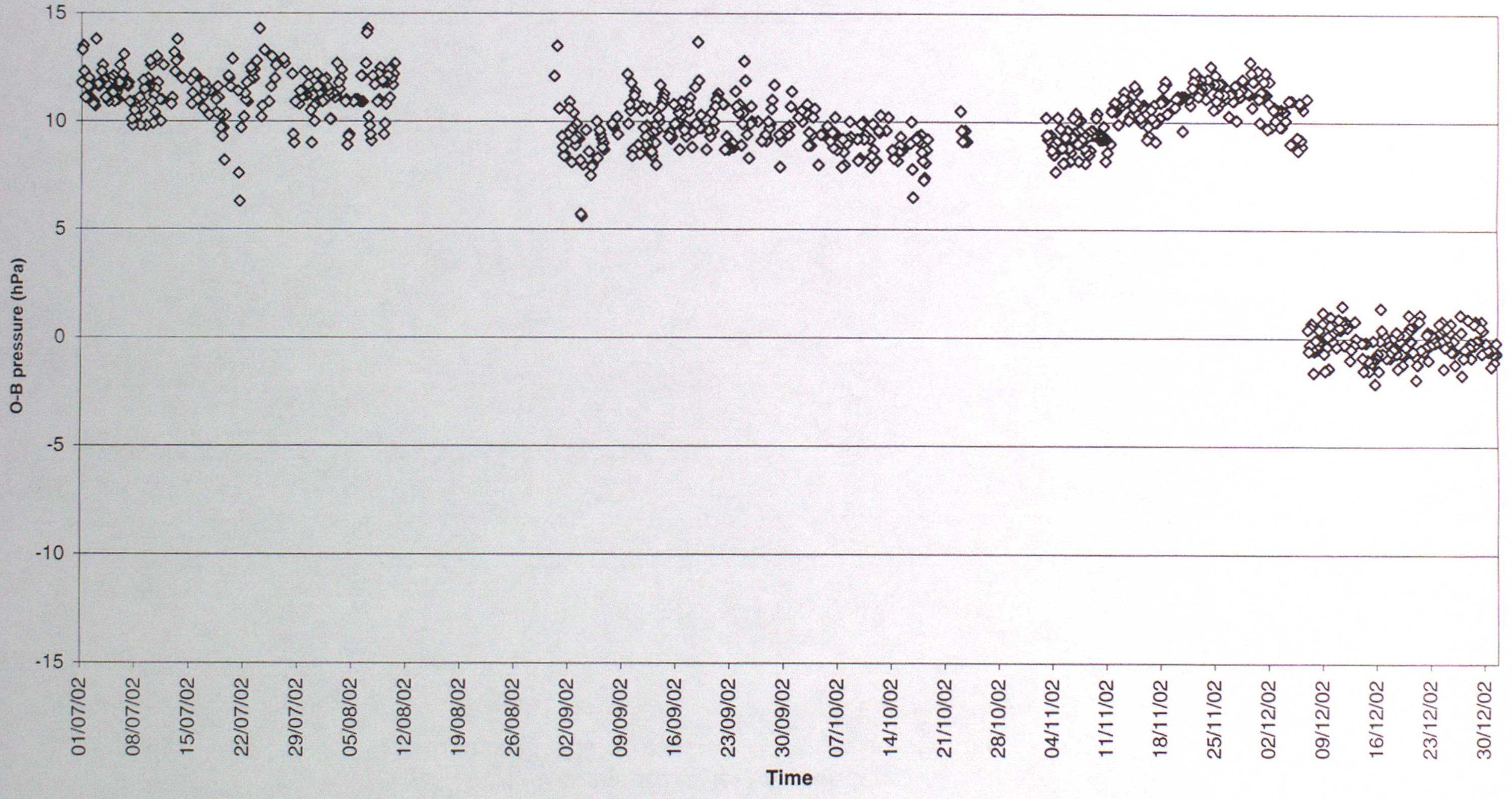
O-B pressure (hPa) for identifier KCDK
Number of obs. plotted = 75   Number of outliers = 2

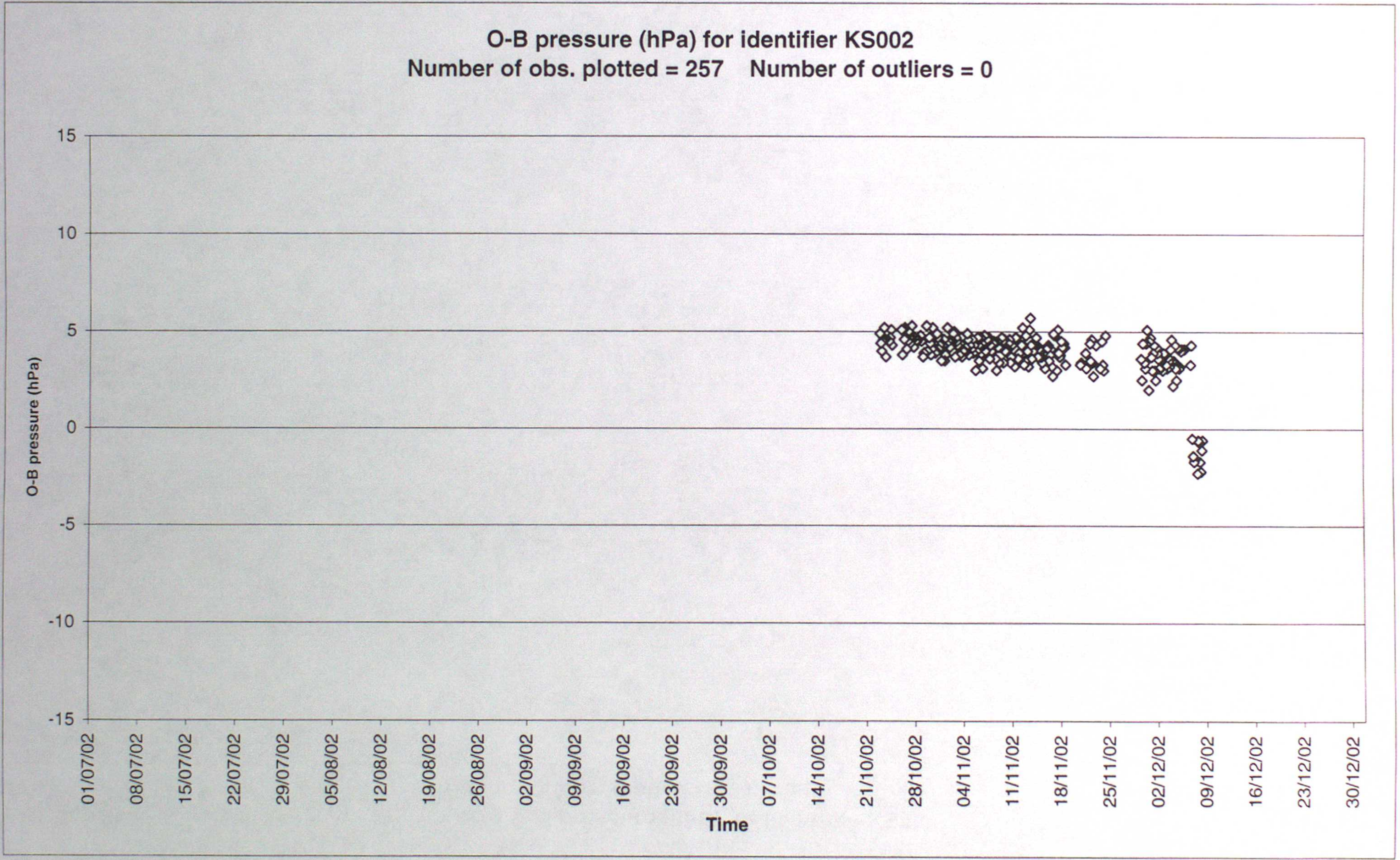




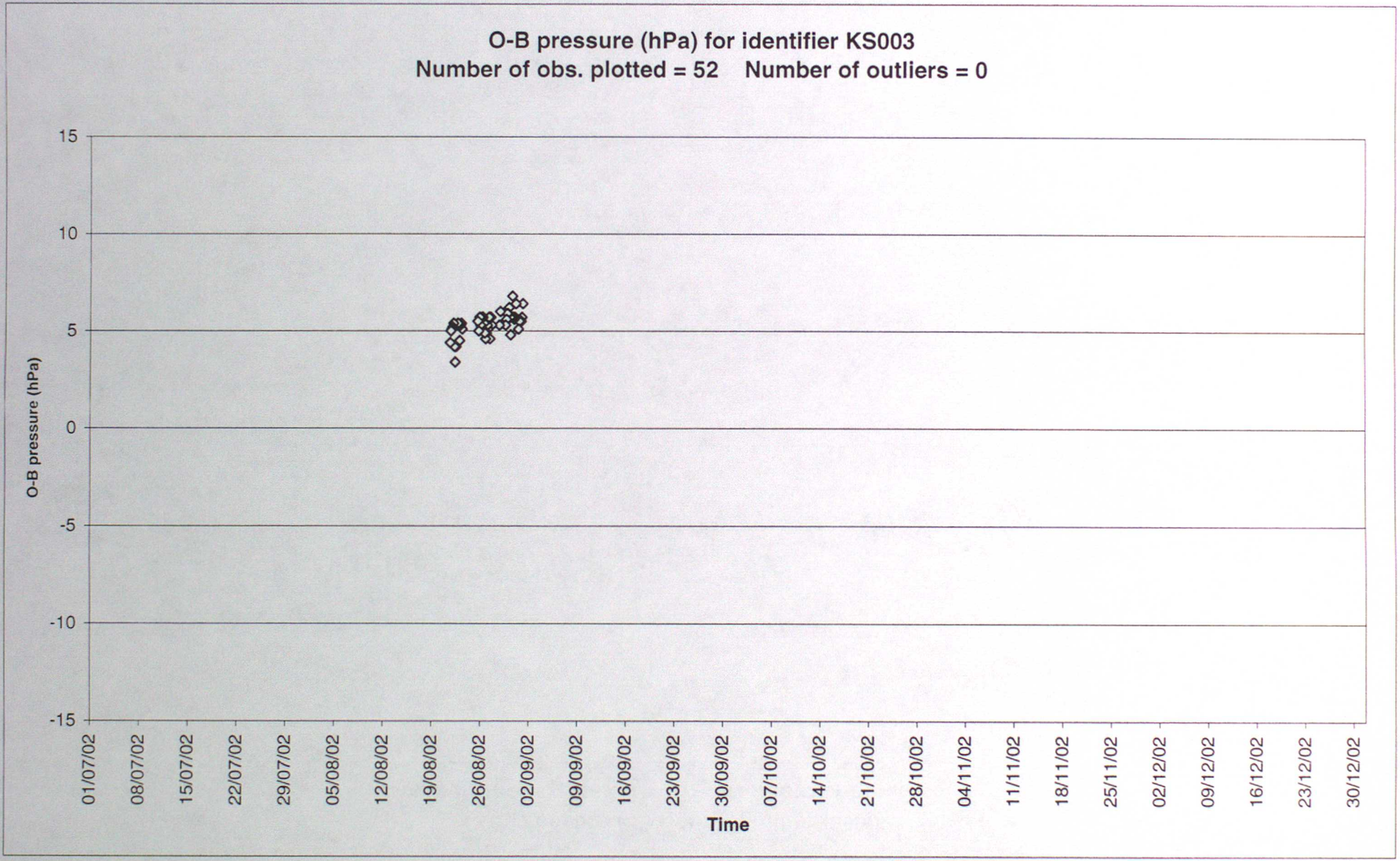
O-B pressure (hPa) for identifier KMJL
Number of obs. plotted = 142   Number of outliers = 0

O-B pressure (hPa) for identifier KS000
Number of obs. plotted = 804   Number of outliers = 0

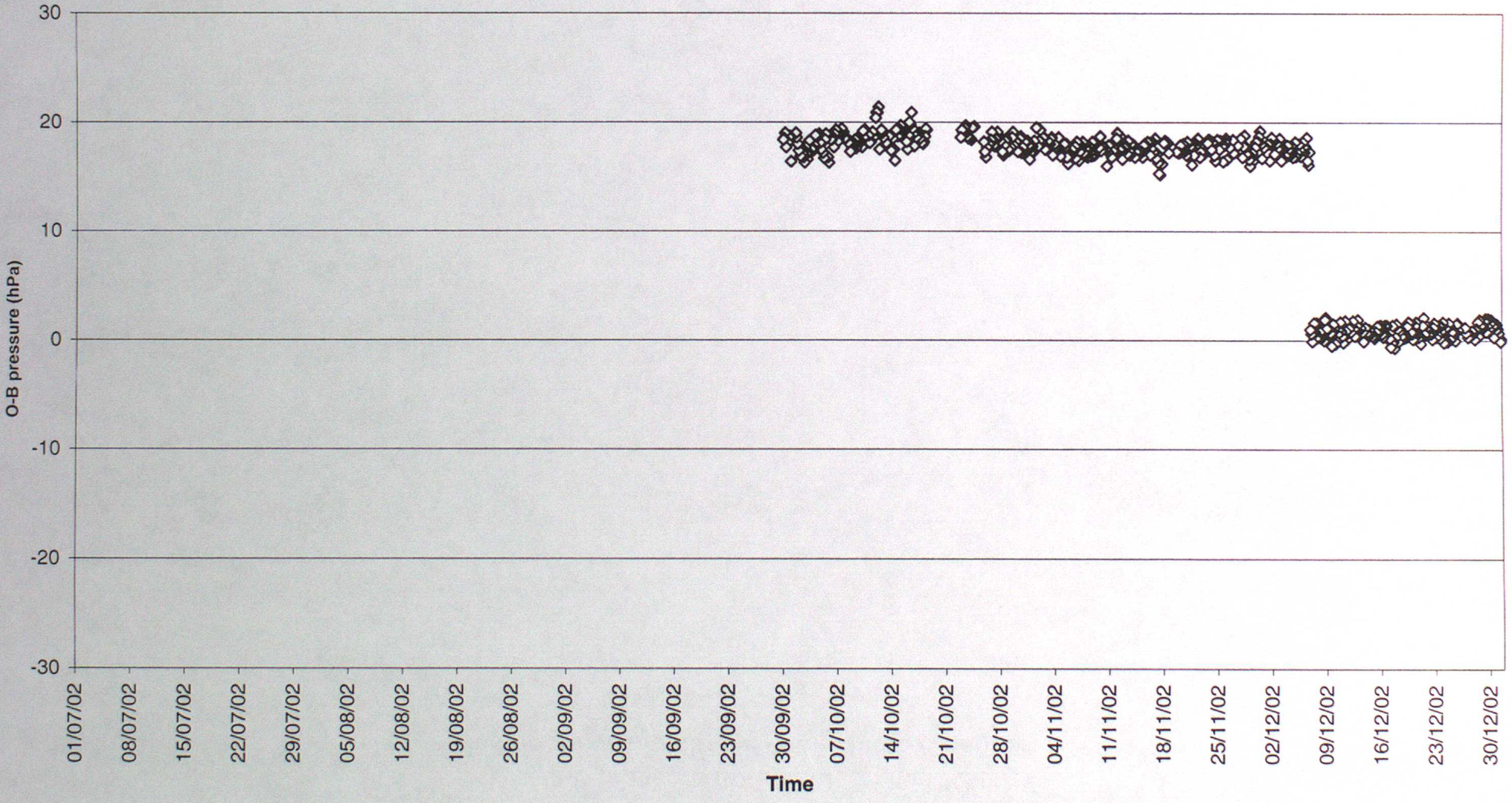


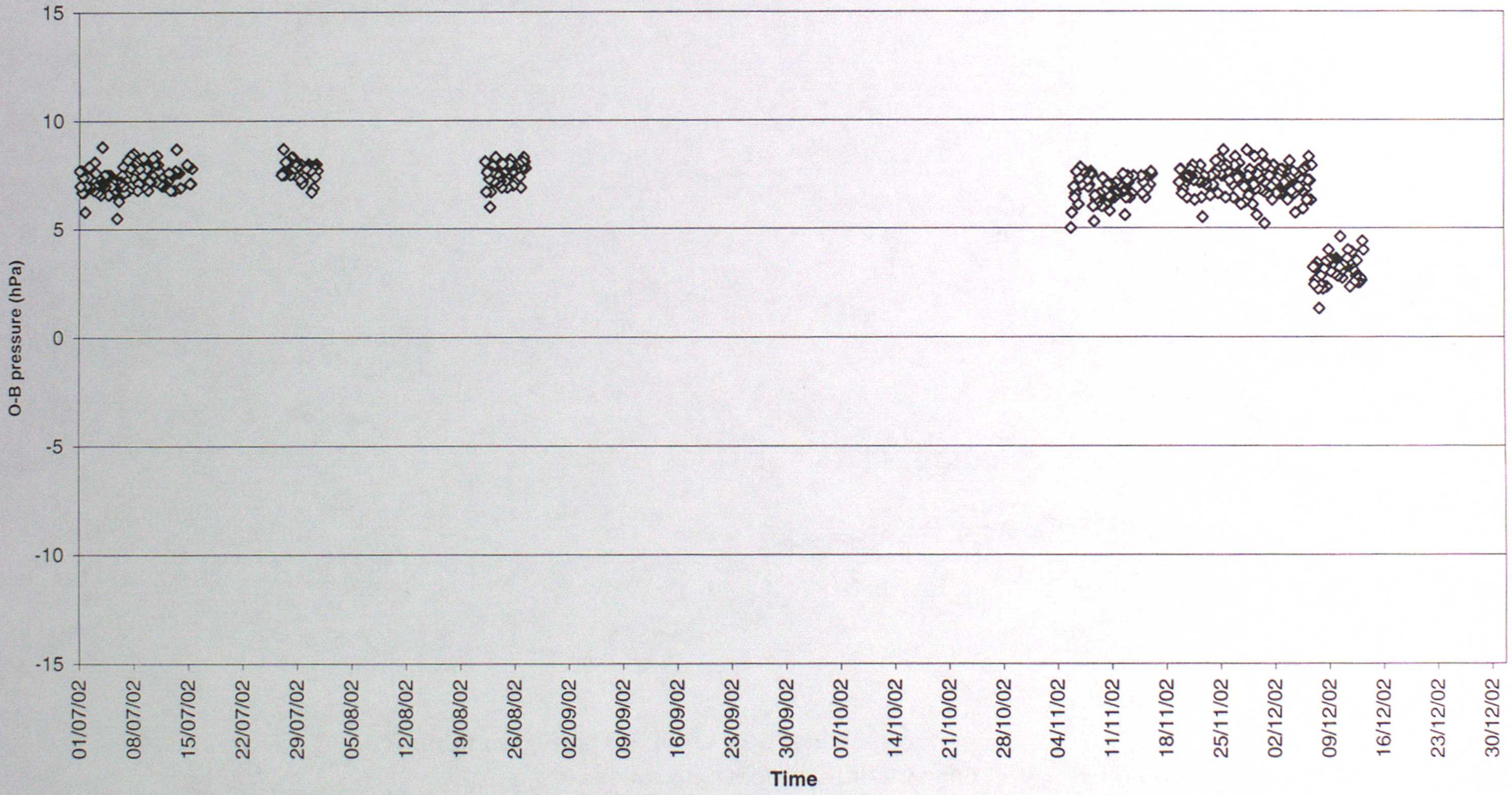


O-B pressure (hPa) for identifier KS002
Number of obs. plotted = 257   Number of outliers = 0


O-B pressure (hPa) for identifier KS003
Number of obs. plotted = 52 Number of outliers = 0

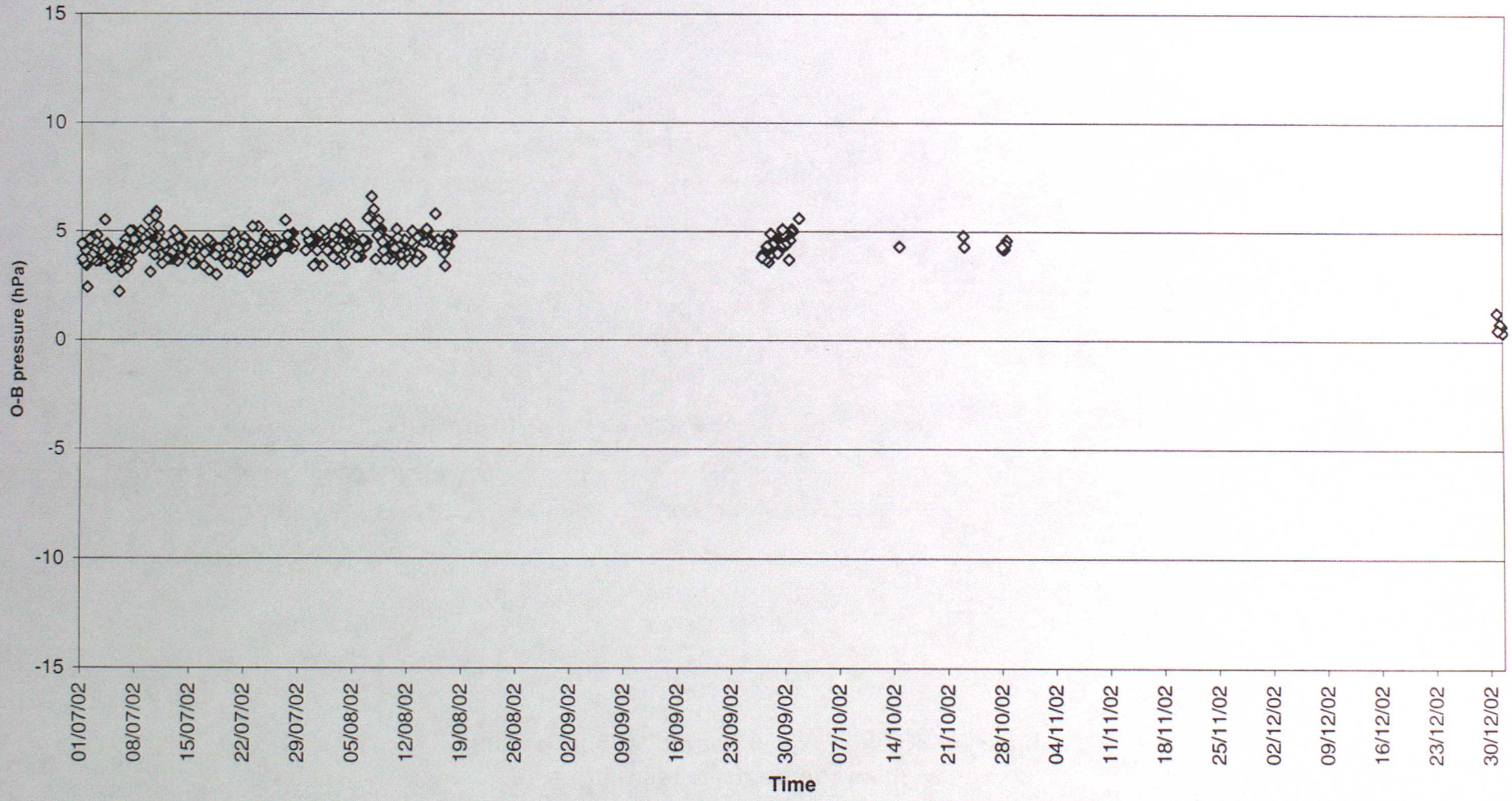
O-B pressure (hPa) for identifier KS004
Number of obs. plotted = 589   Number of outliers = 0



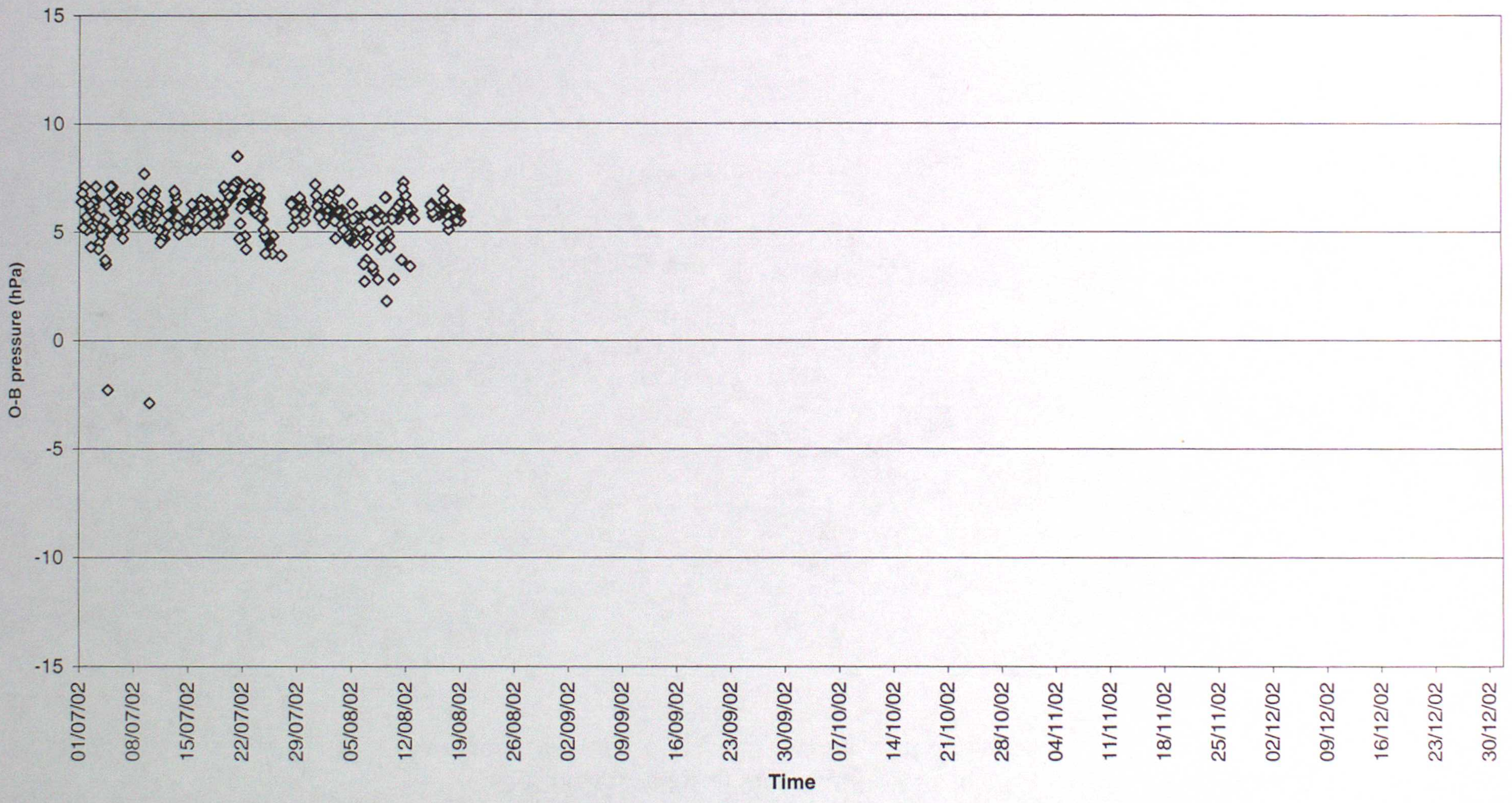


O-B pressure (hPa) for identifier KS006
Number of obs. plotted = 412   Number of outliers = 0

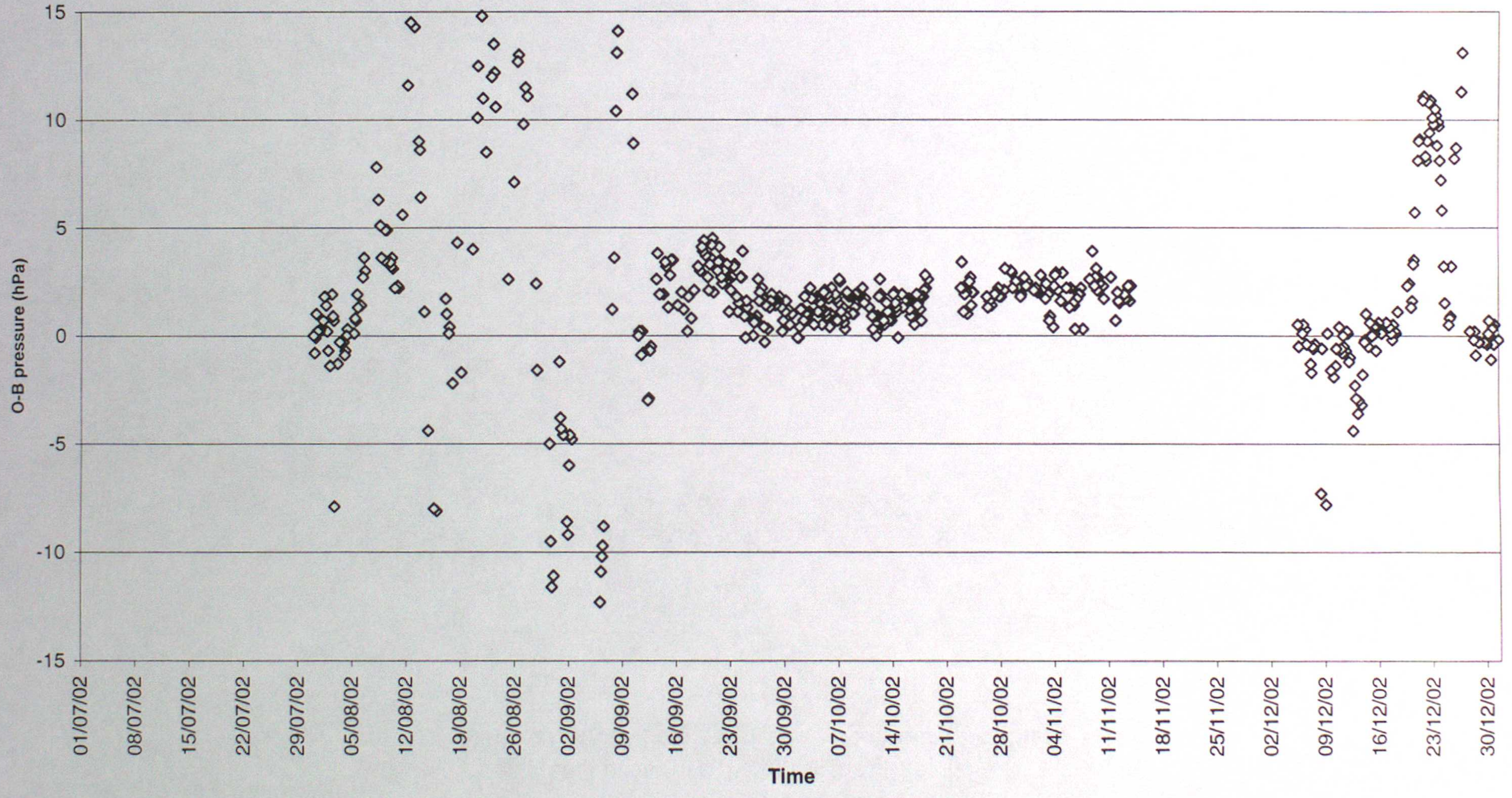
O-B pressure (hPa) for identifier KS010
Number of obs. plotted = 329   Number of outliers = 0



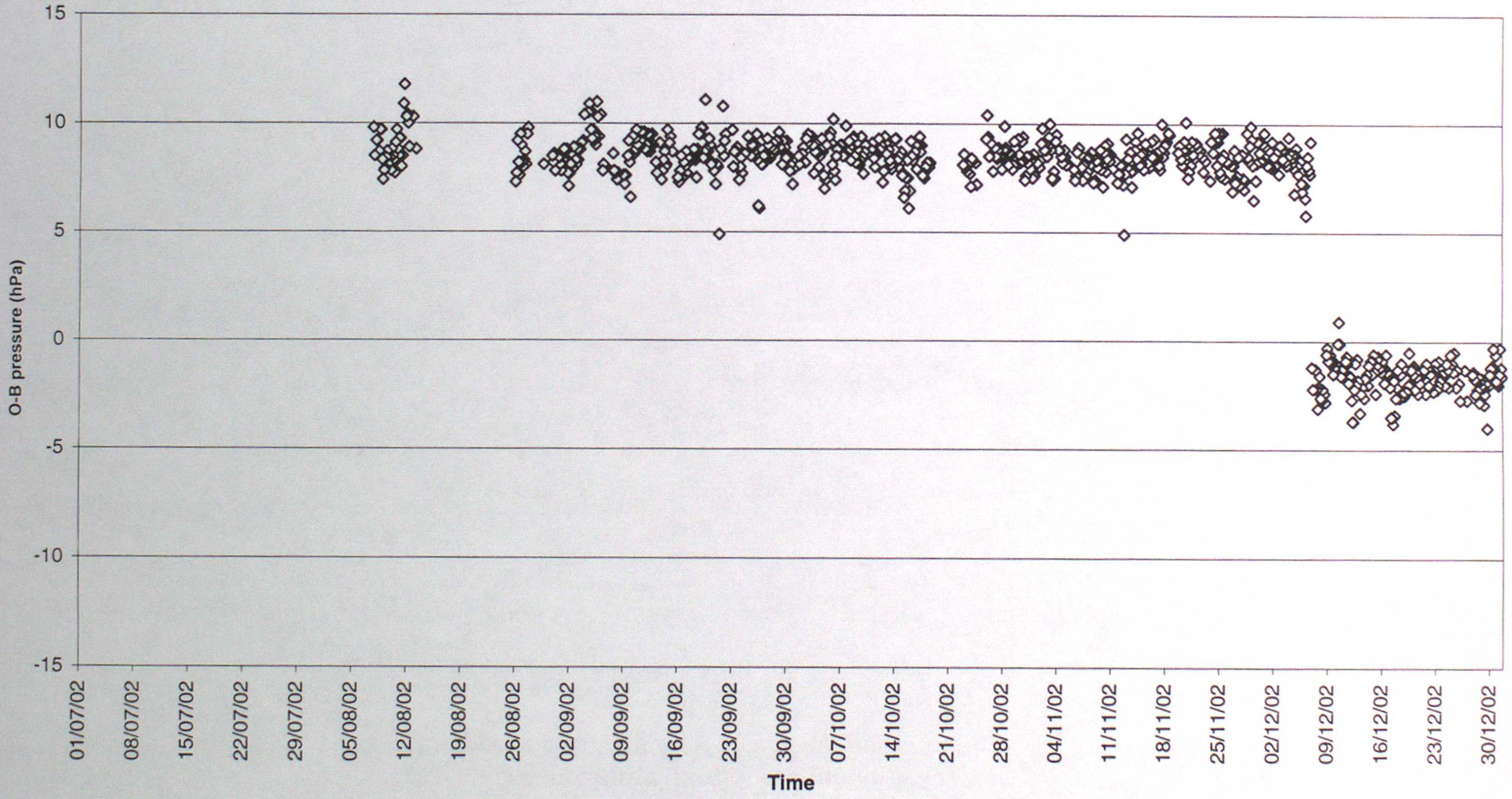
O-B pressure (hPa) for identifier KS012
Number of obs. plotted = 304   Number of outliers = 0



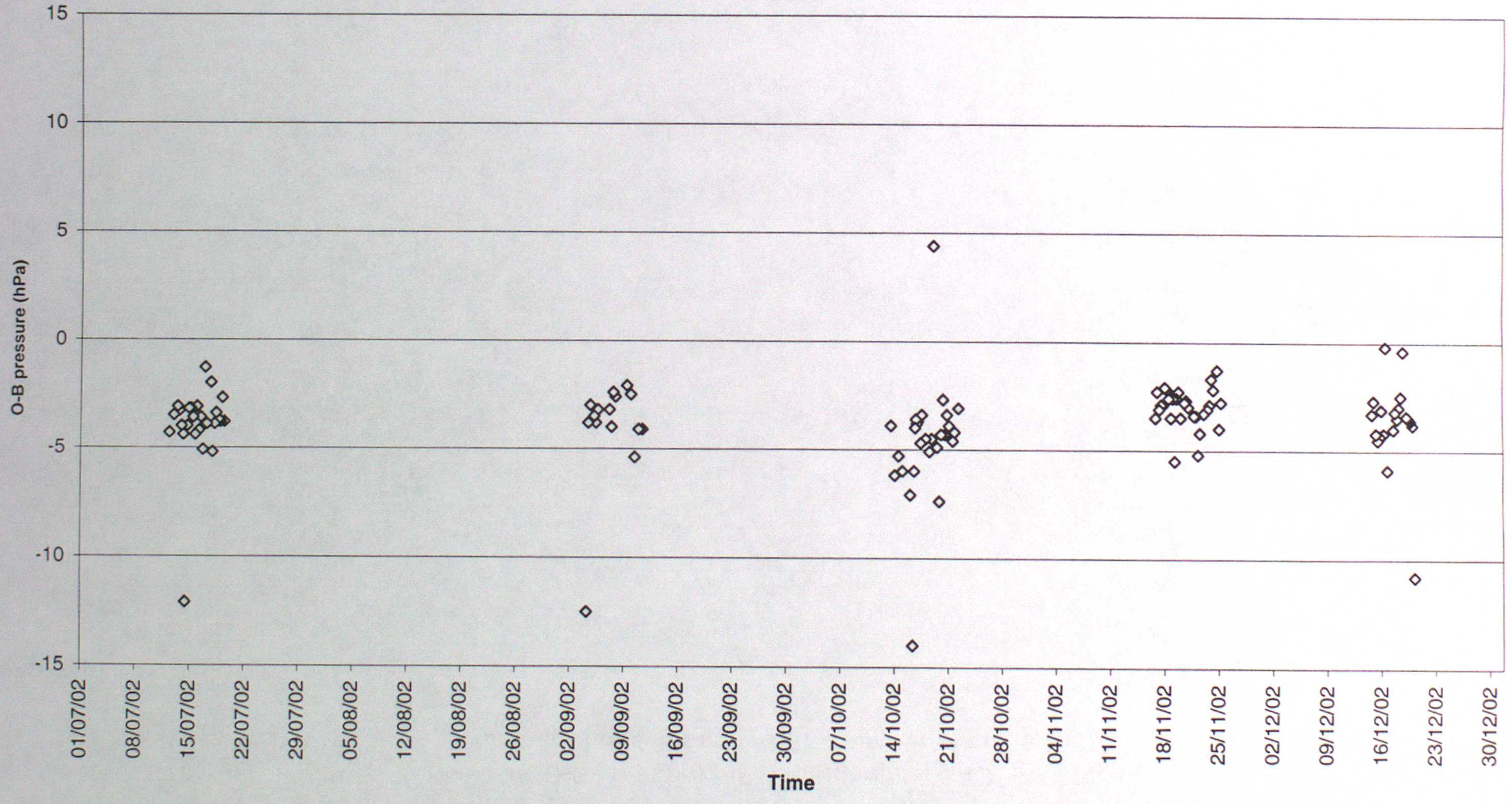
O-B pressure (hPa) for identifier KS014
Number of obs. plotted = 513   Number of outliers = 4

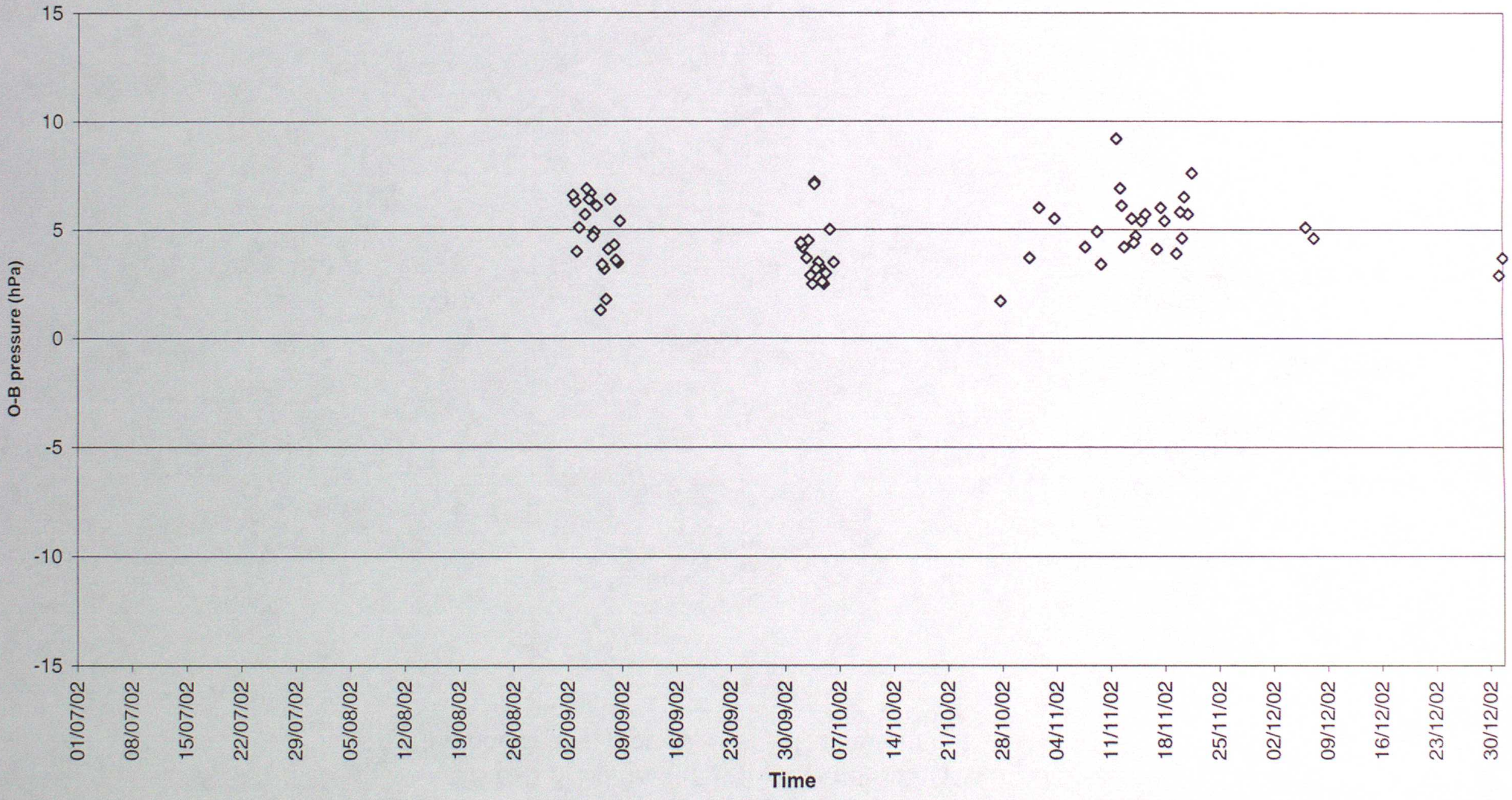


O-B pressure (hPa) for identifier KS025
Number of obs. plotted = 814   Number of outliers = 0



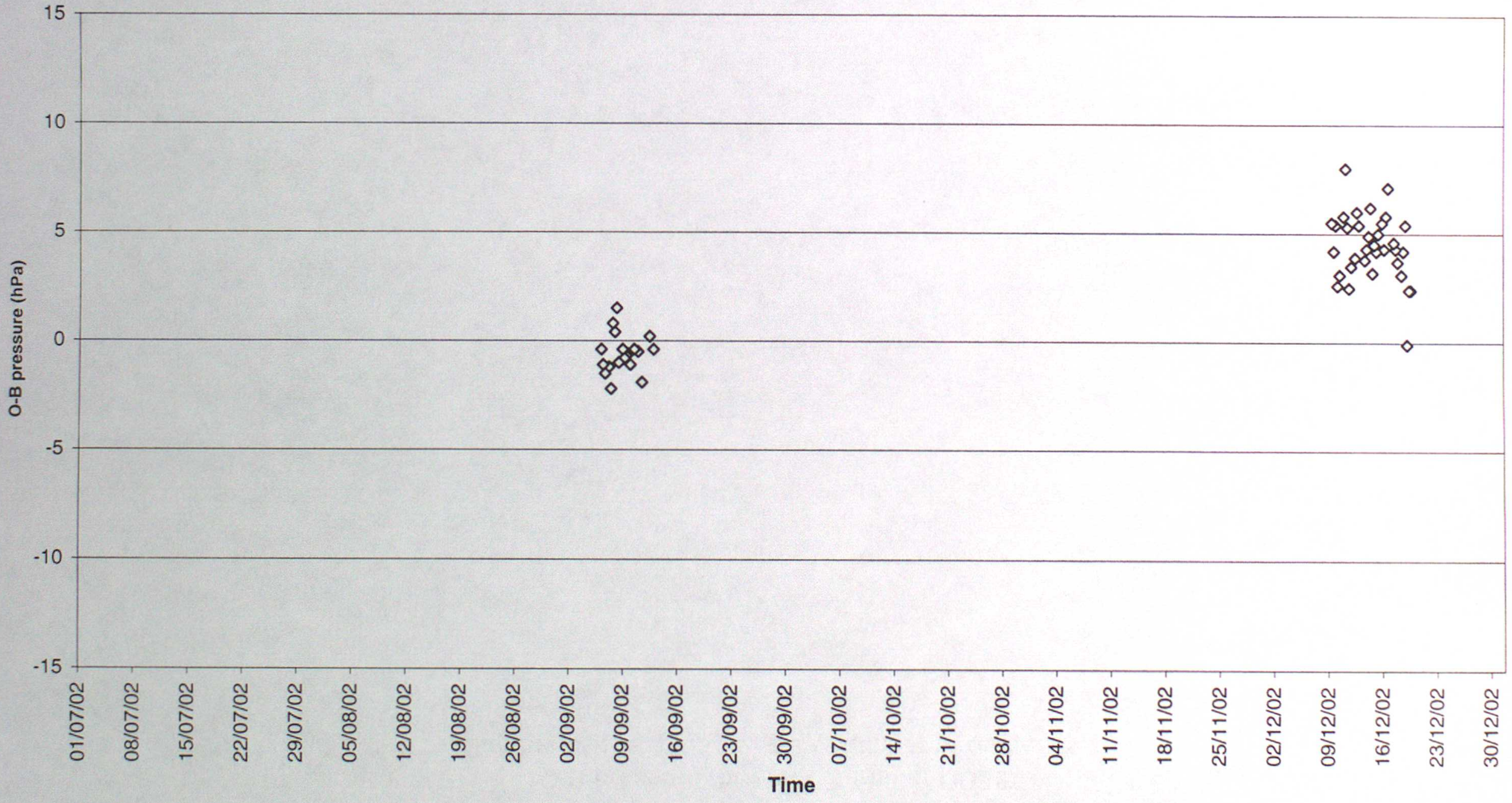
O-B pressure (hPa) for identifier LADQ4
Number of obs. plotted = 117   Number of outliers = 1





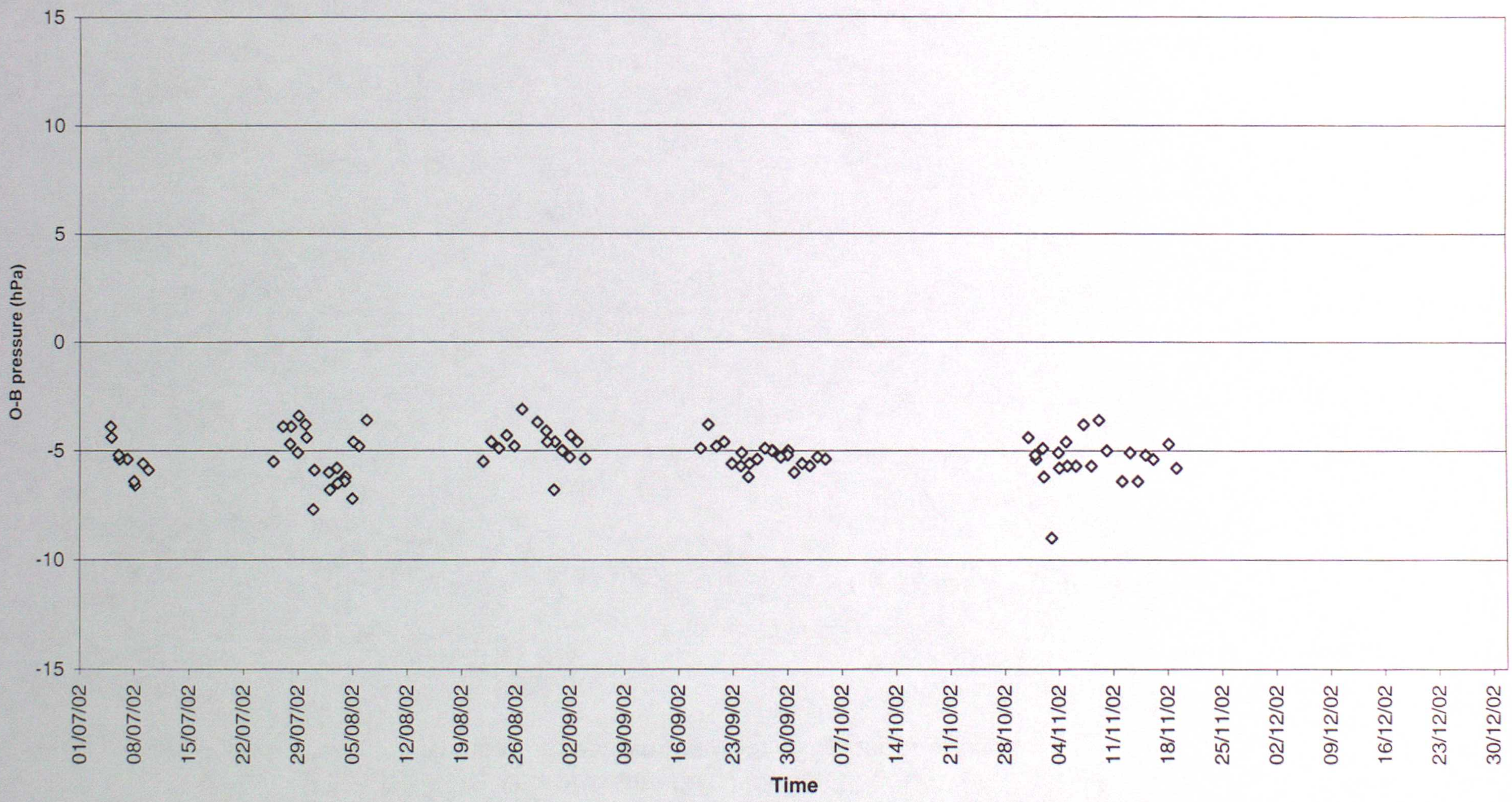
O-B pressure (hPa) for identifier LAOL5
Number of obs. plotted = 66   Number of outliers = 0

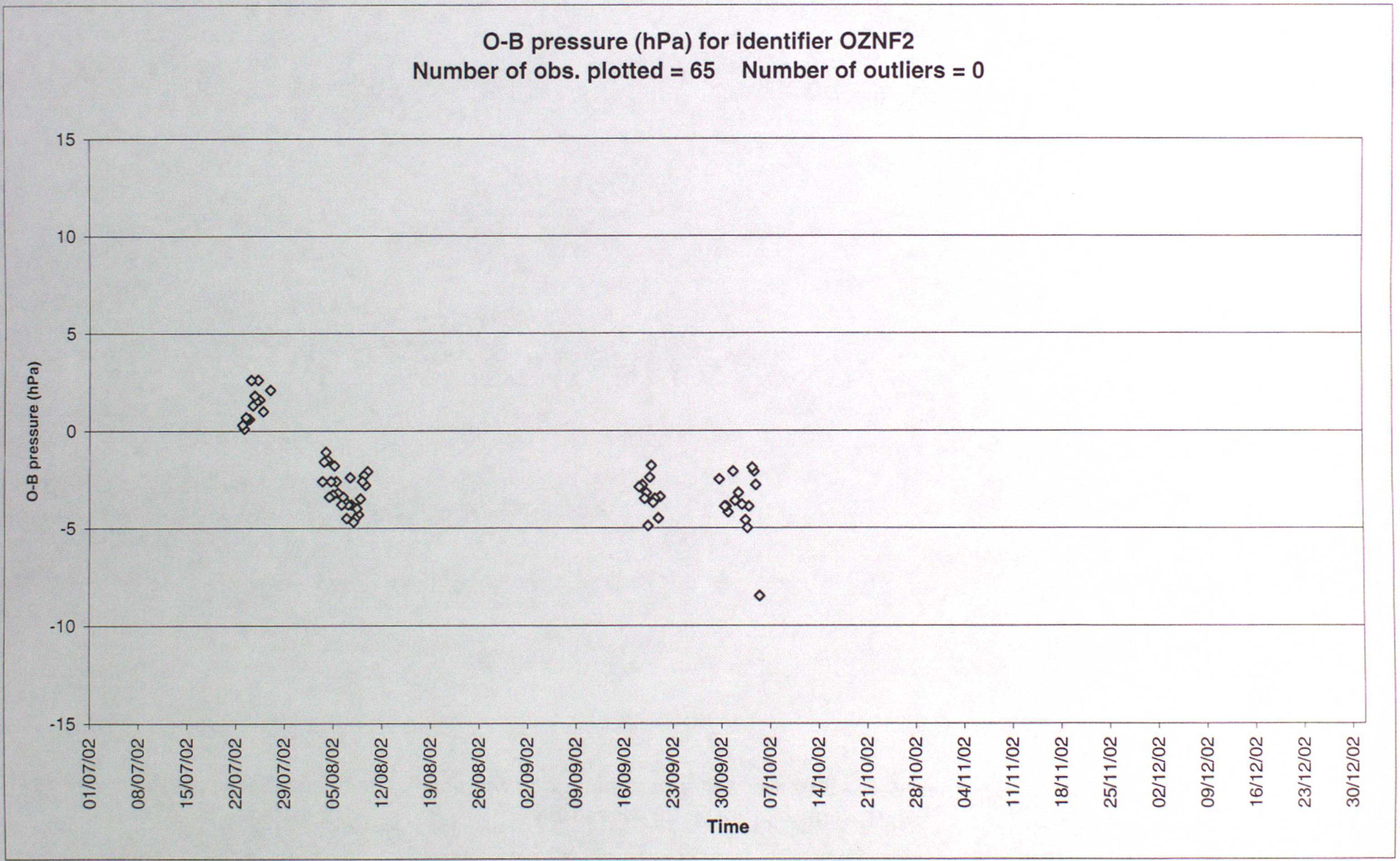
O-B pressure (hPa) for identifier LAVV4
Number of obs. plotted = 53   Number of outliers = 0



O-B pressure (hPa) for identifier OUSE6

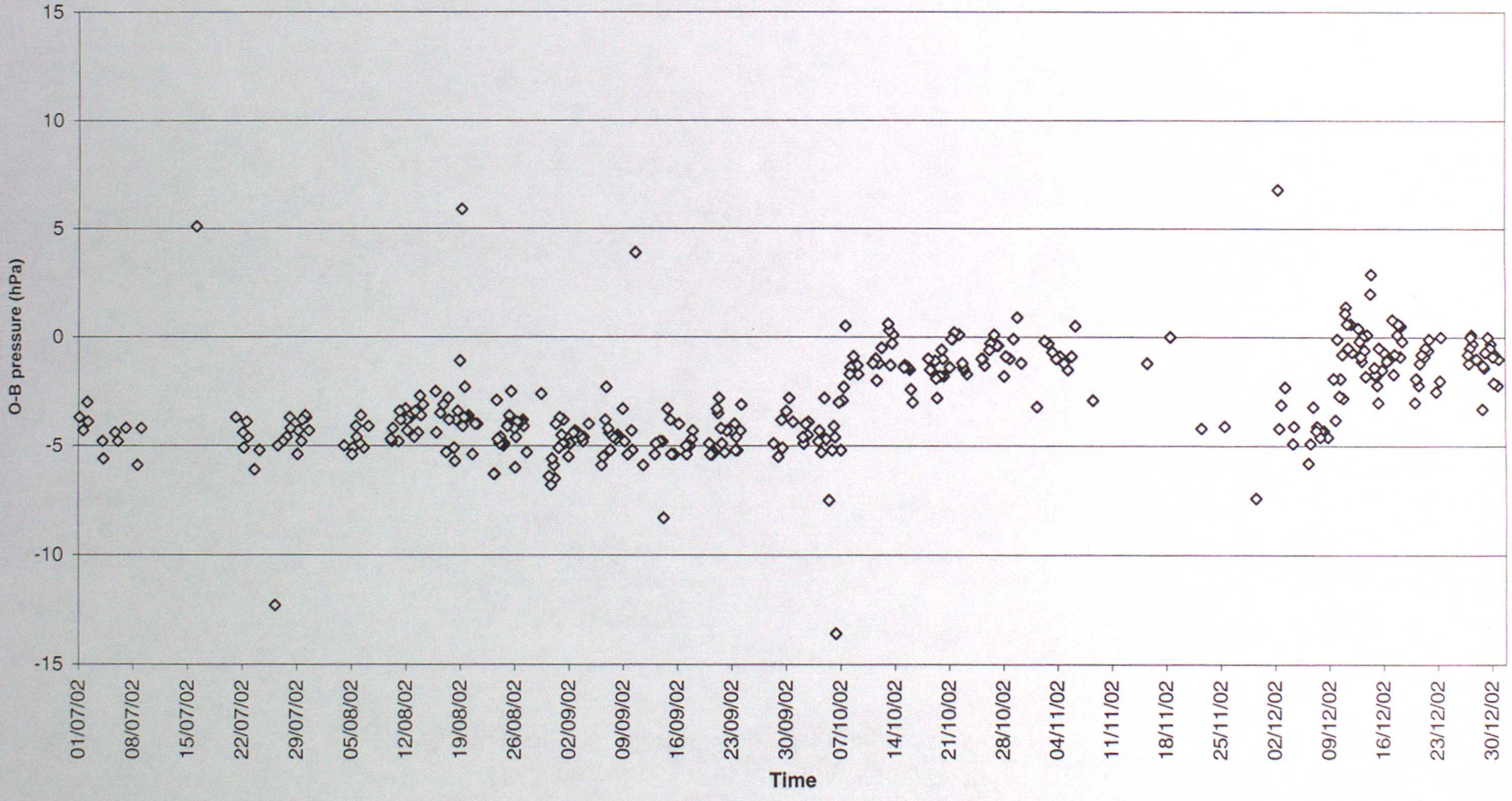
Number of obs. plotted = 89   Number of outliers = 1





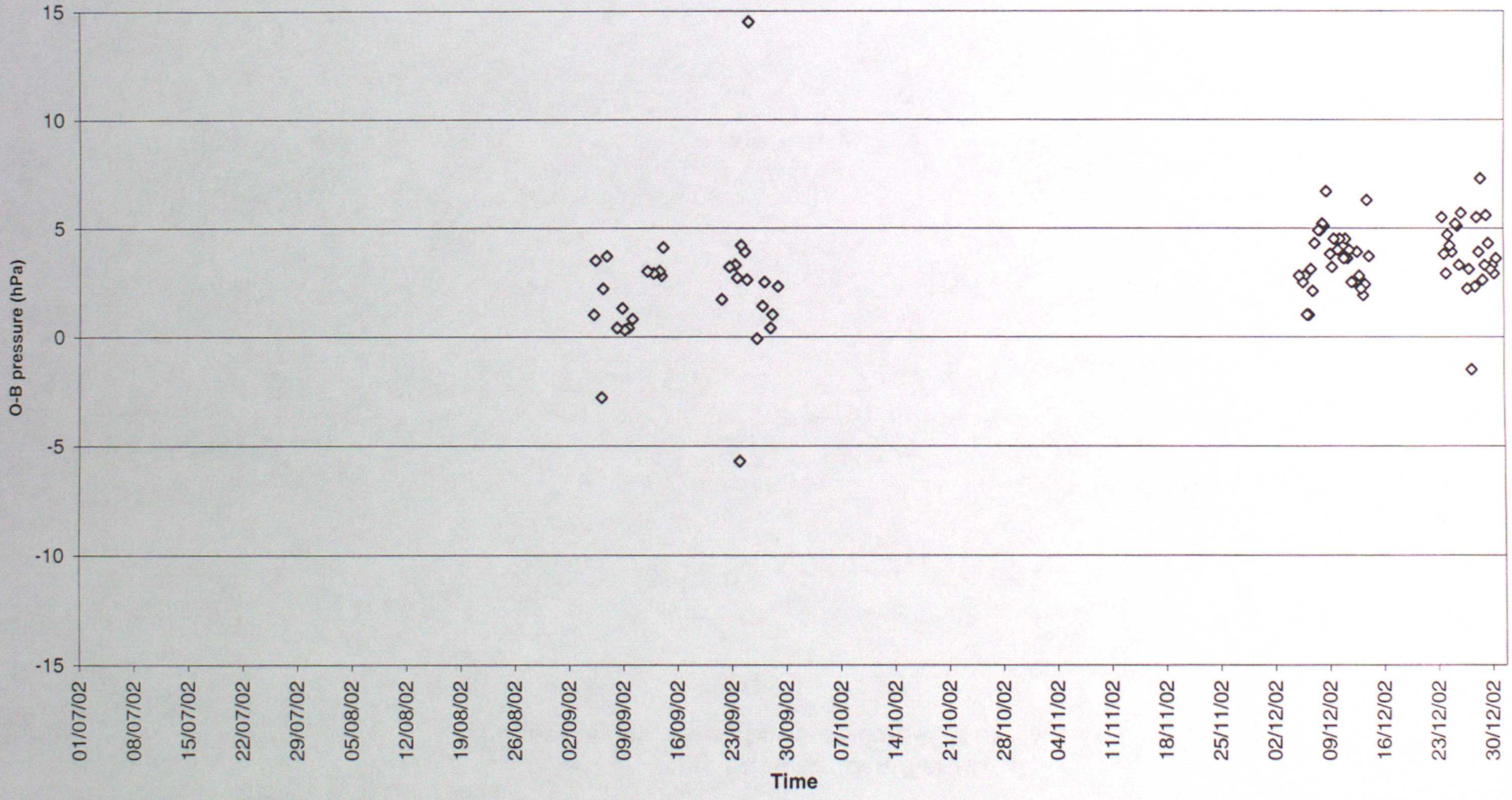
O-B pressure (hPa) for identifier OZNF2
Number of obs. plotted = 65   Number of outliers = 0

O-B pressure (hPa) for identifier OWDD
Number of obs. plotted = 362   Number of outliers = 2

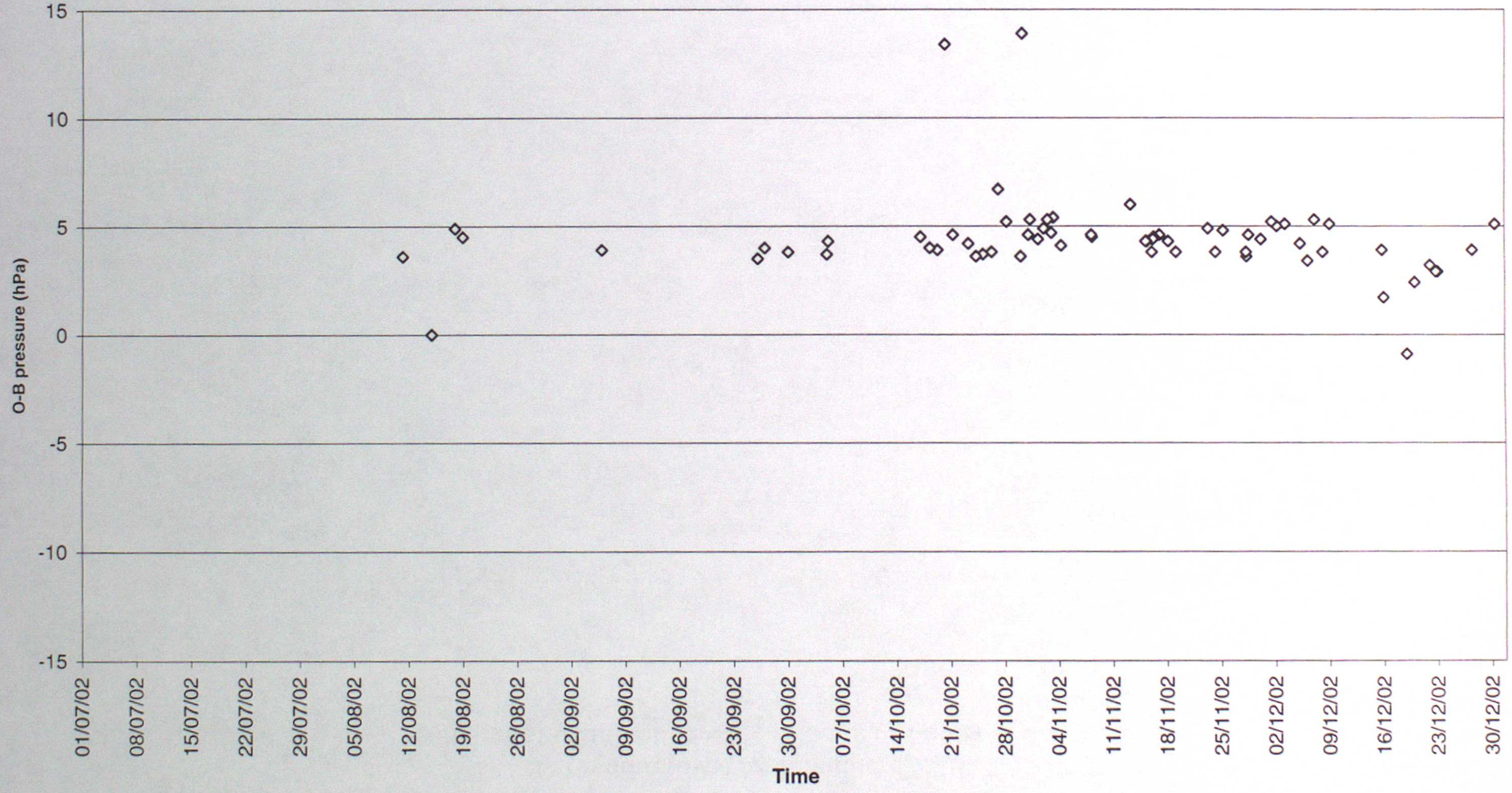


O-B pressure (hPa) for identifier OZZB2

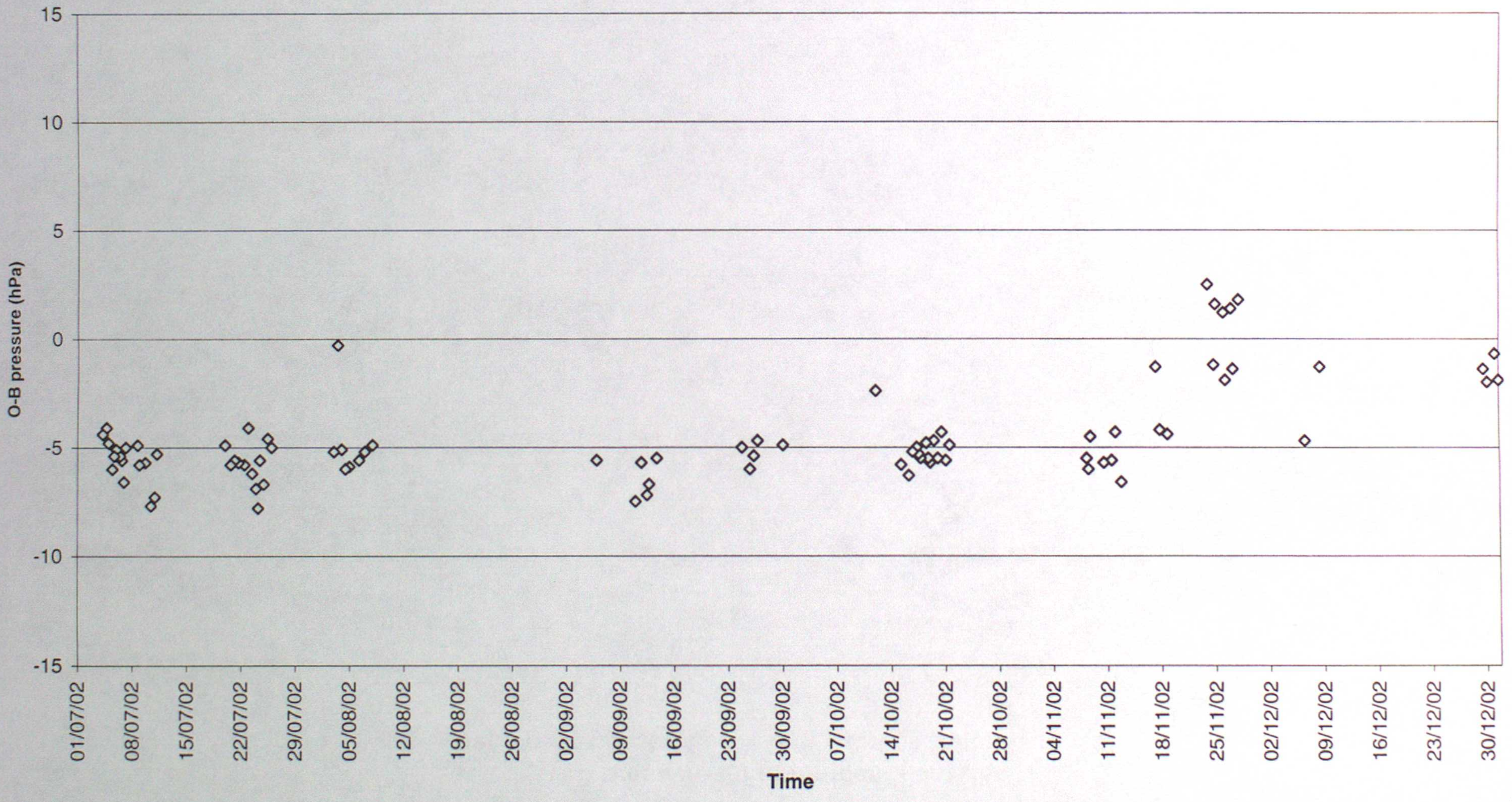
Number of obs. plotted = 86   Number of outliers = 1

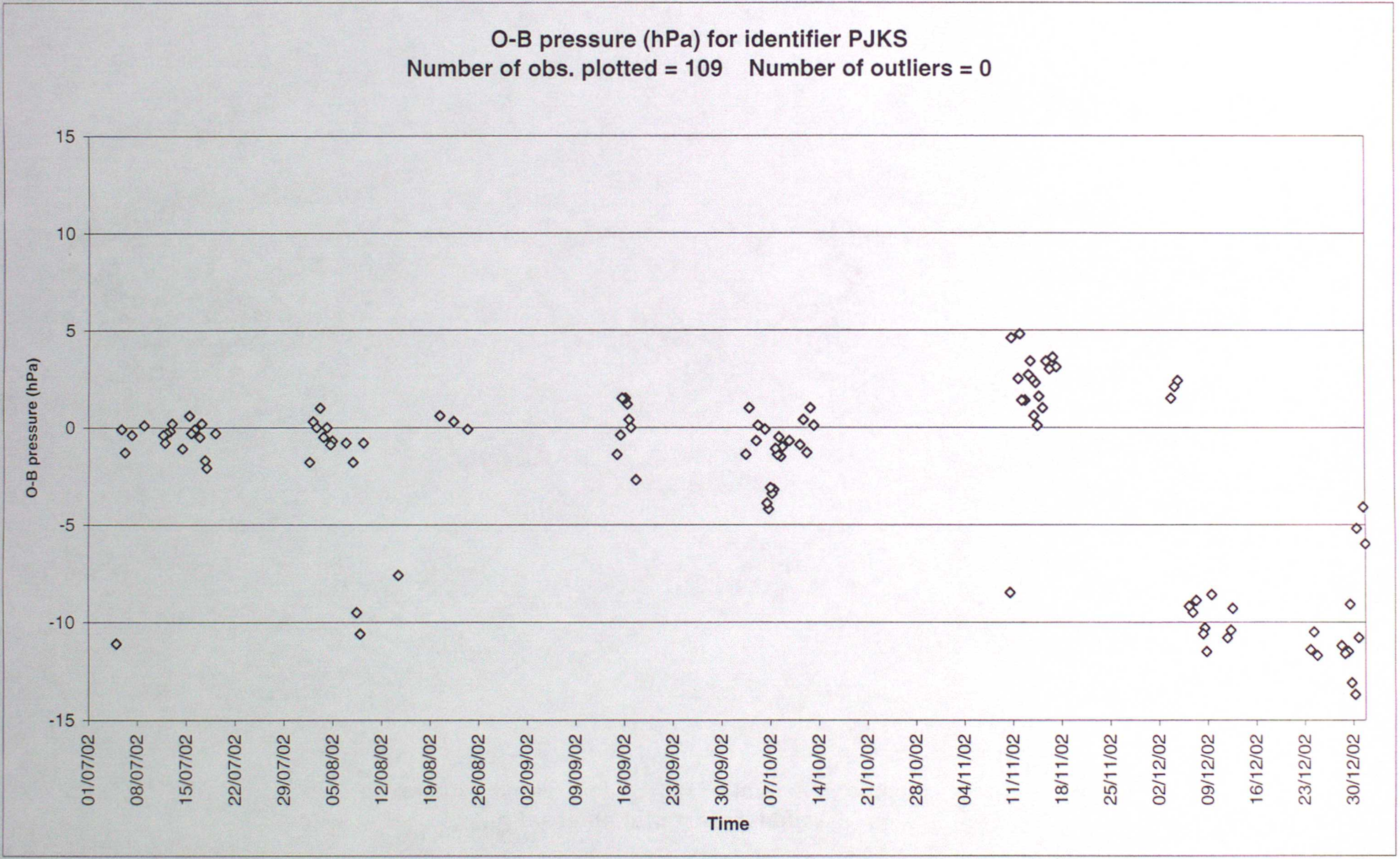


O-B pressure (hPa) for identifier PDGS
Number of obs. plotted = 66   Number of outliers = 0



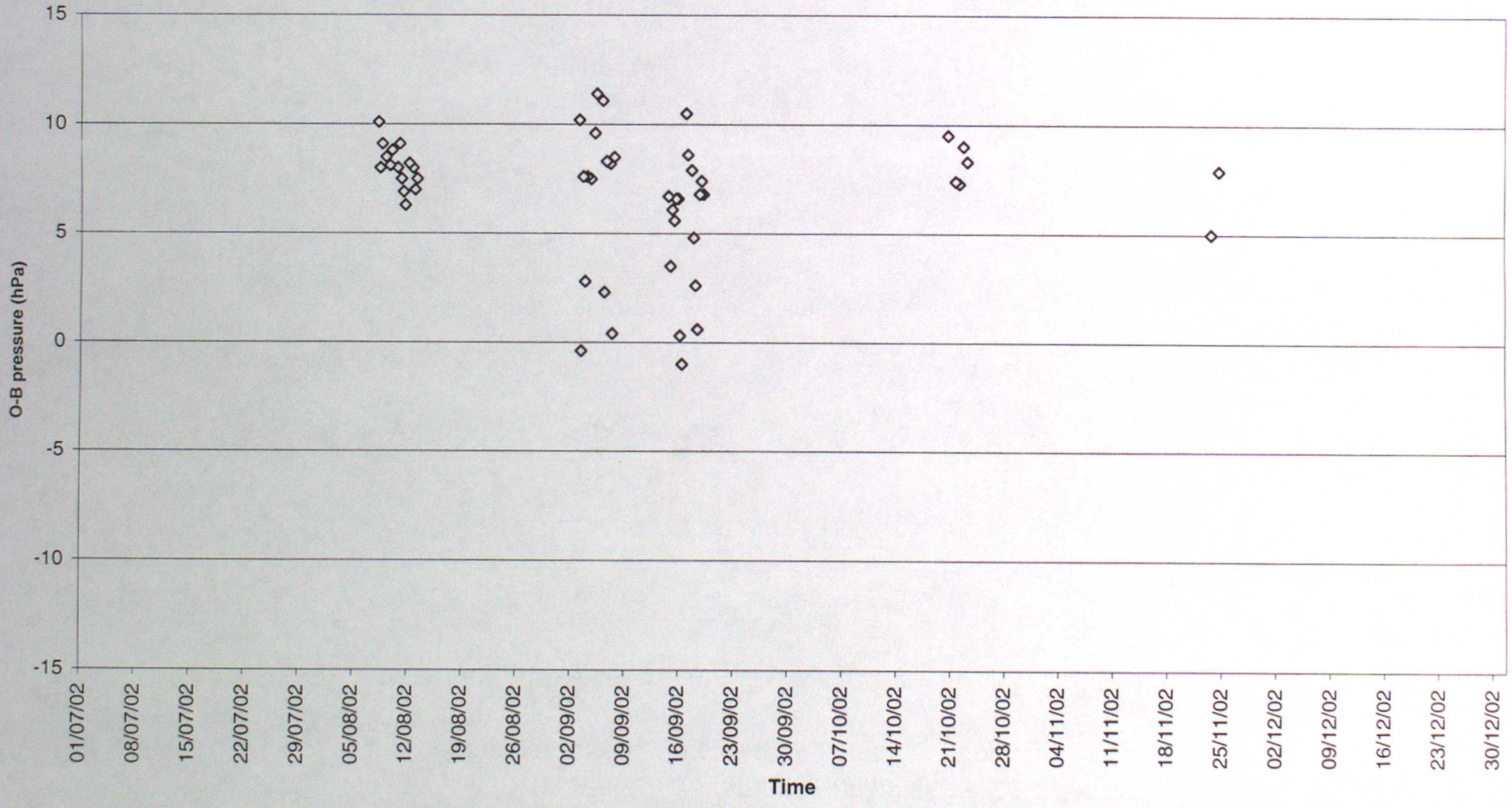
O-B pressure (hPa) for identifier PFBE
Number of obs. plotted = 87   Number of outliers = 0



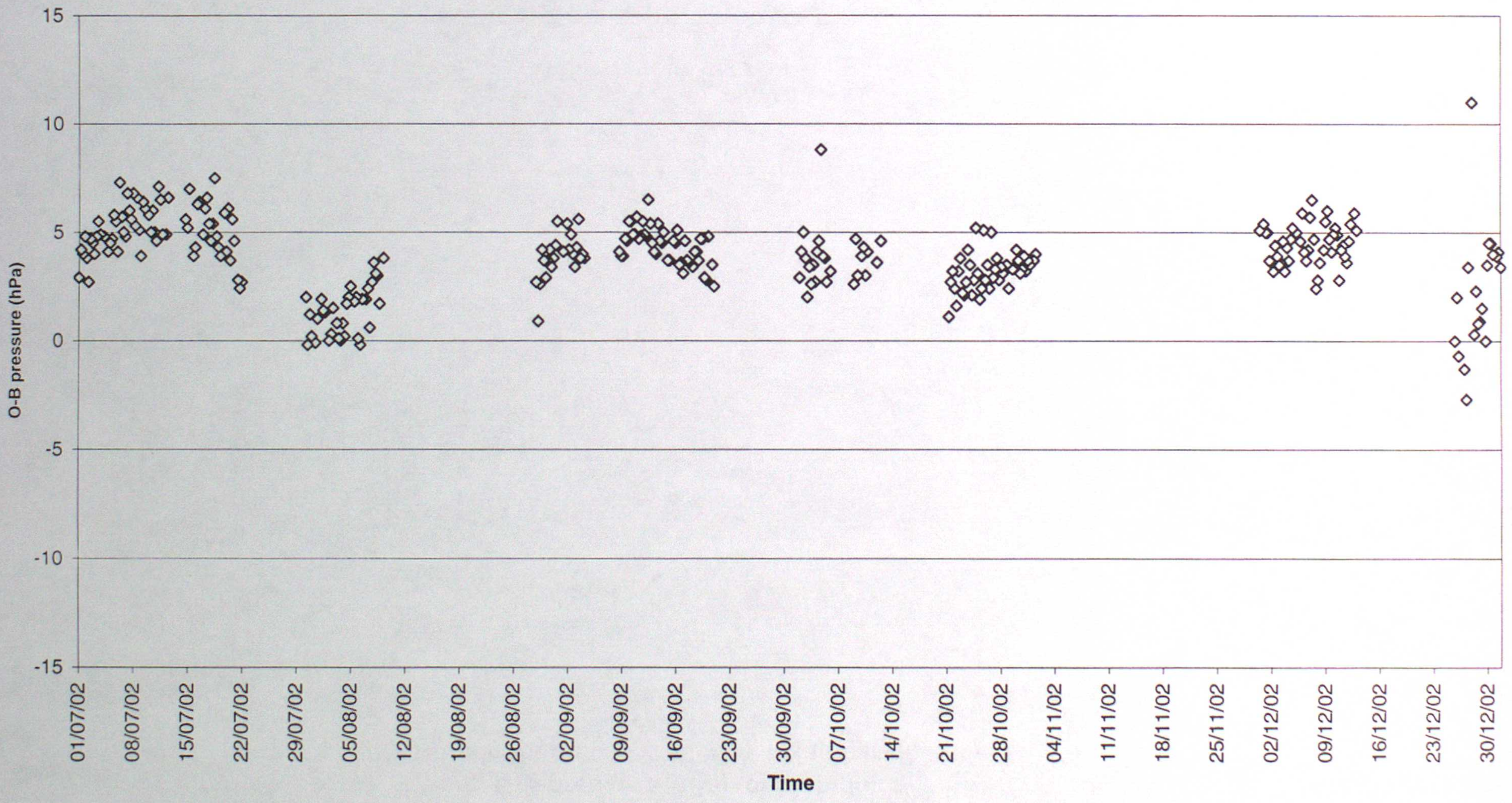


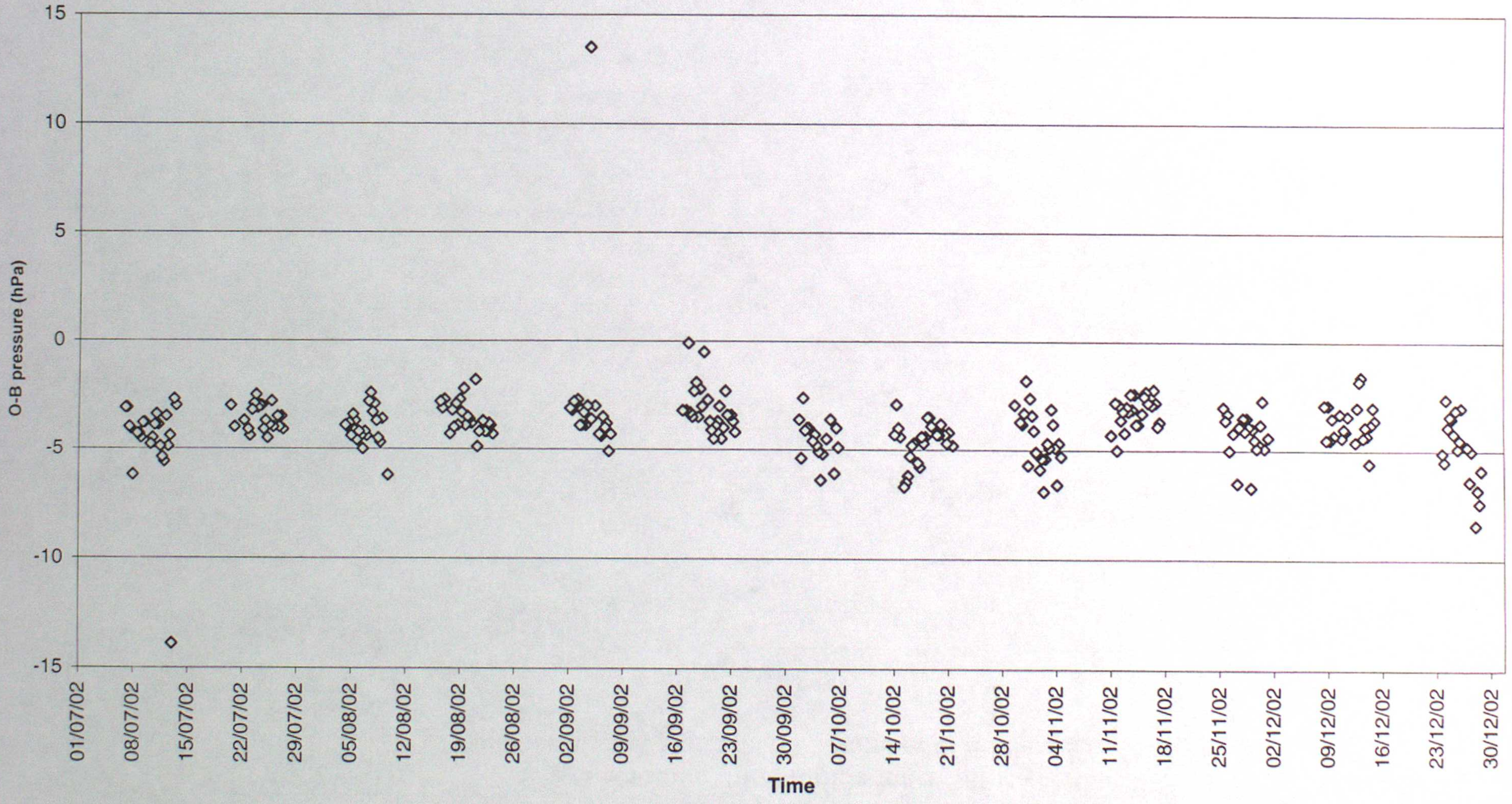
O-B pressure (hPa) for identifier PJKS
Number of obs. plotted = 109   Number of outliers = 0

O-B pressure (hPa) for identifier P3NK5
Number of obs. plotted = 53   Number of outliers = 2



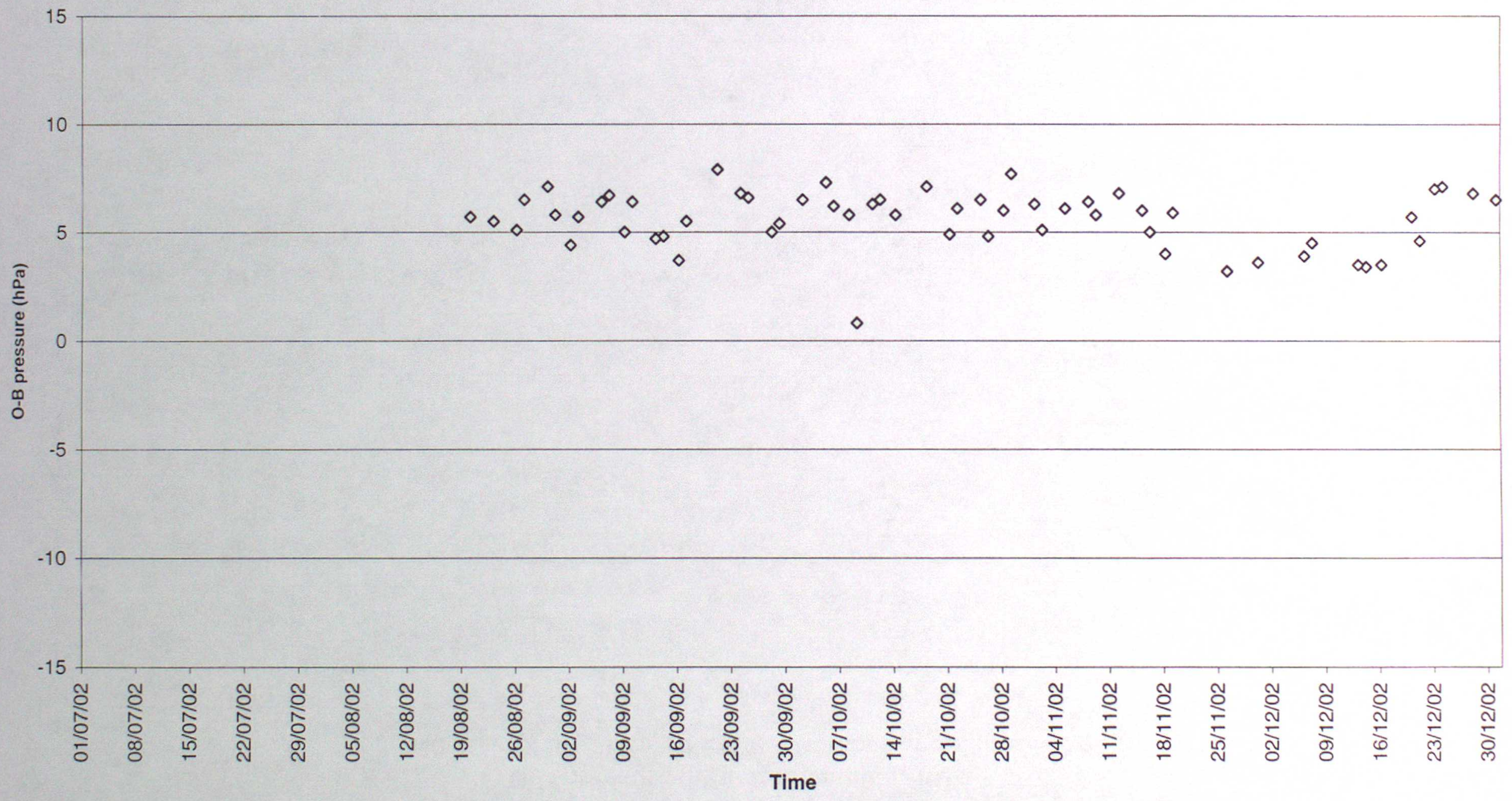
O-B pressure (hPa) for identifier P3YS5
Number of obs. plotted = 306   Number of outliers = 0

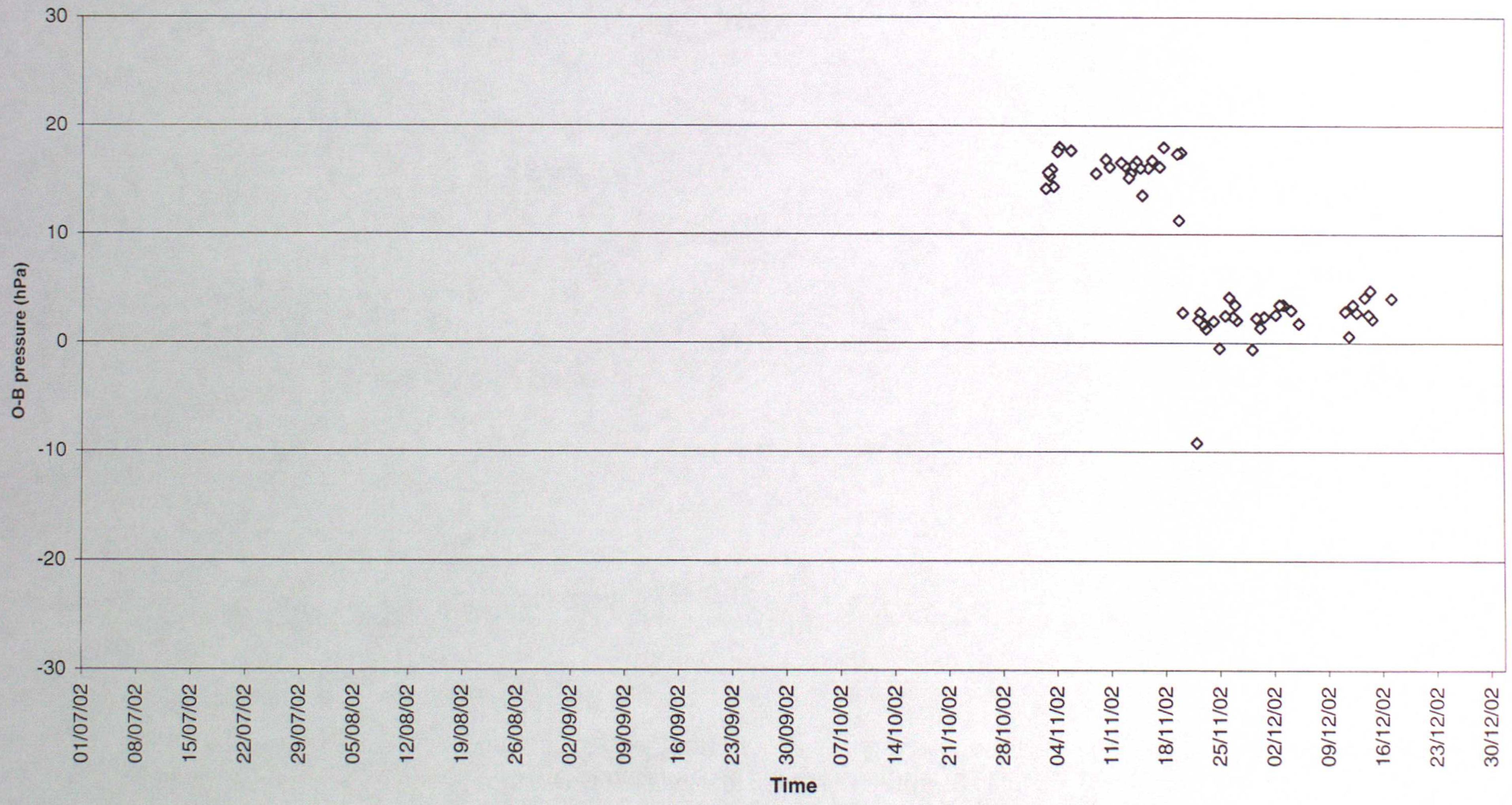




O-B pressure (hPa) for identifier SGIX
Number of obs. plotted = 284   Number of outliers = 1

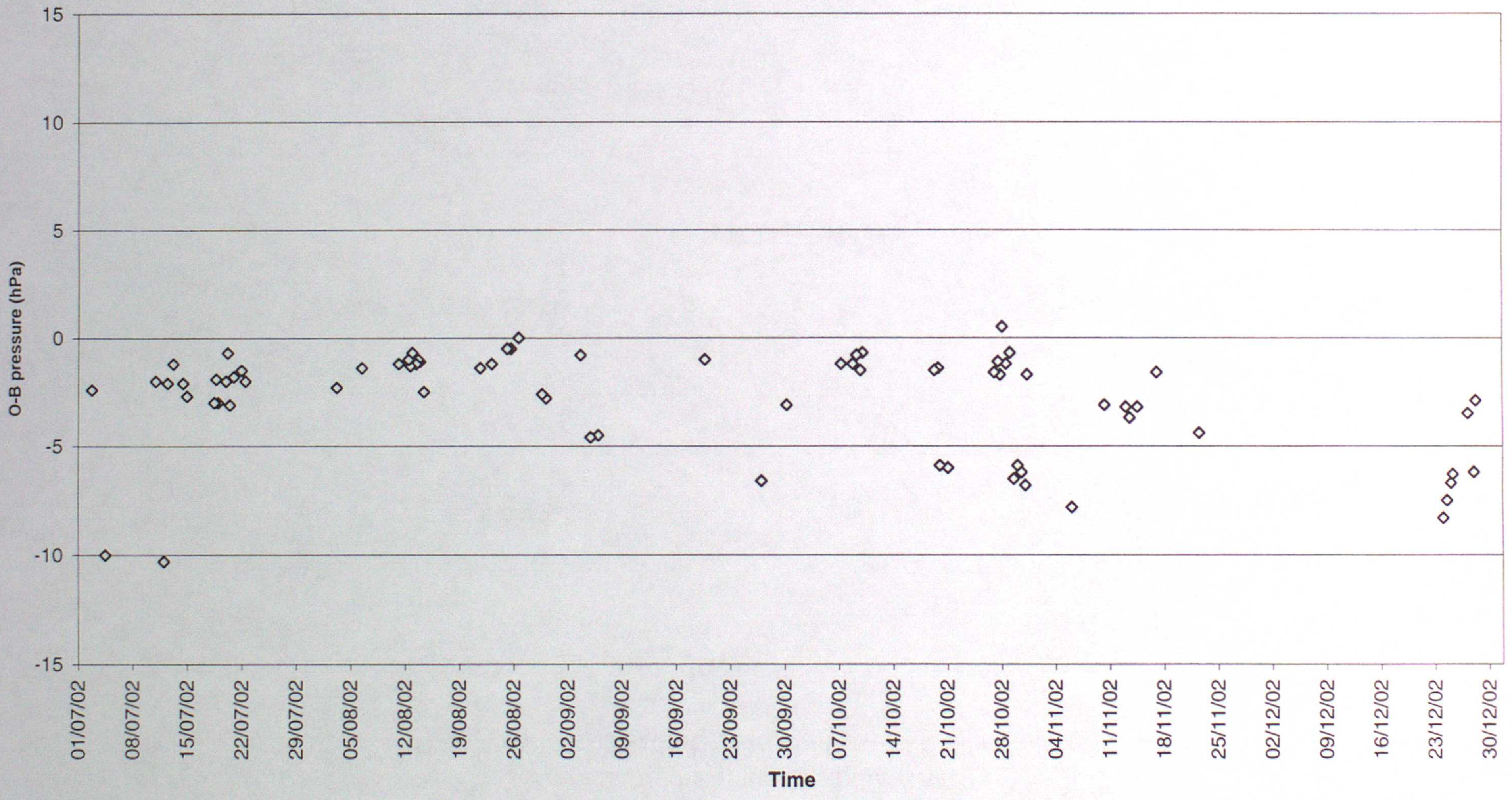
O-B pressure (hPa) for identifier S6DH
Number of obs. plotted = 59   Number of outliers = 0



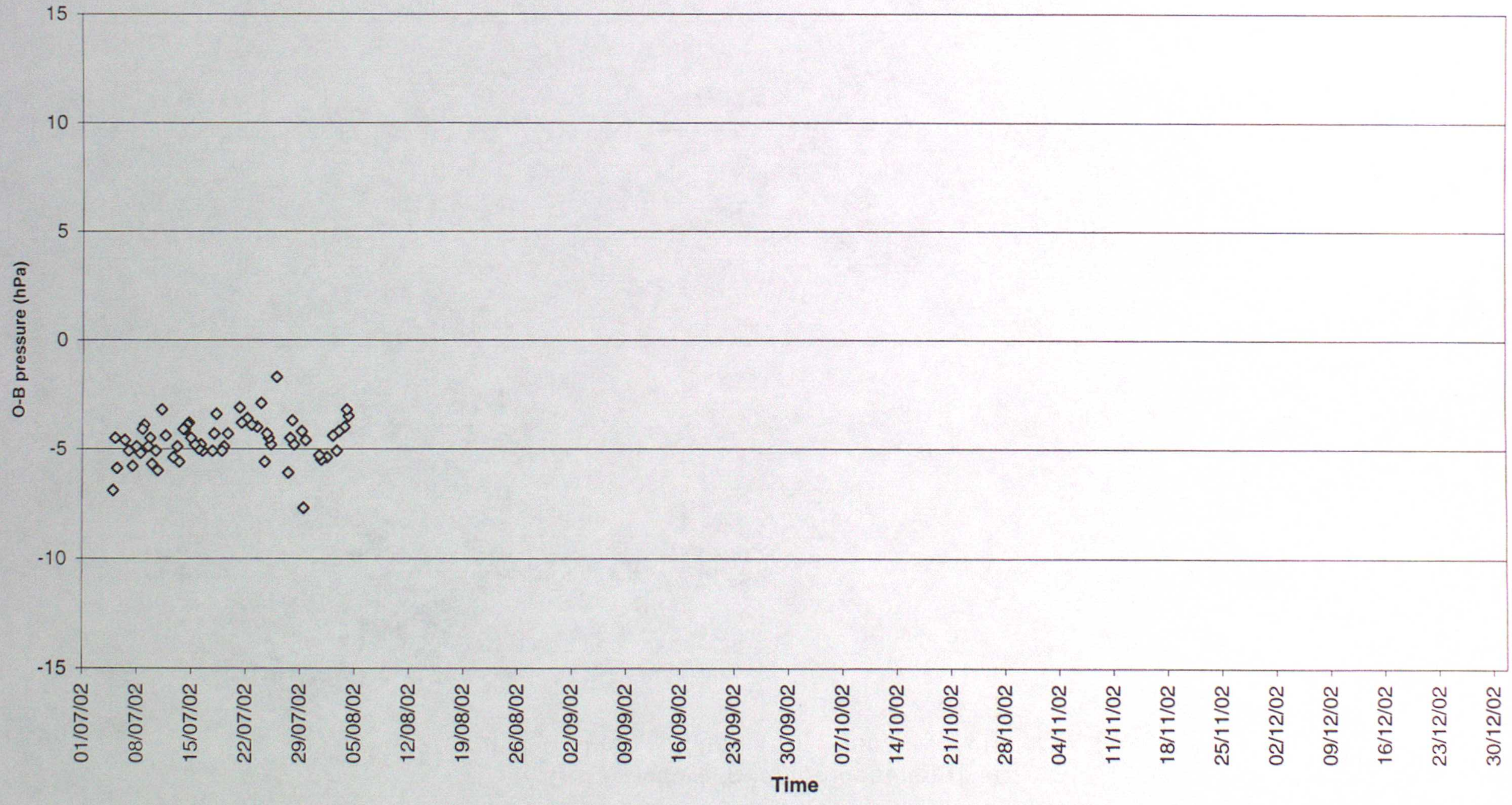


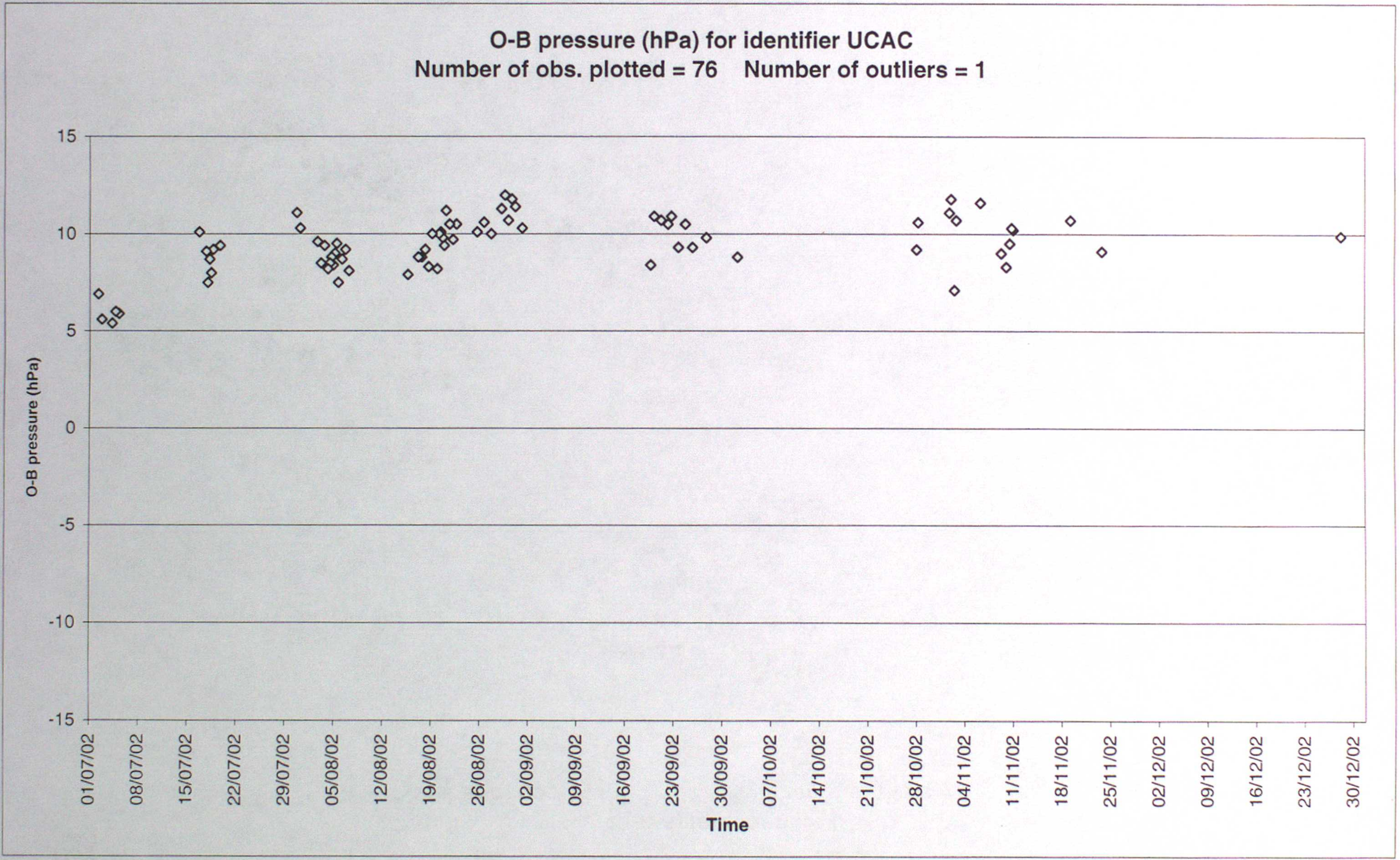
O-B pressure (hPa) for identifier UAMR
Number of obs. plotted = 58   Number of outliers = 0

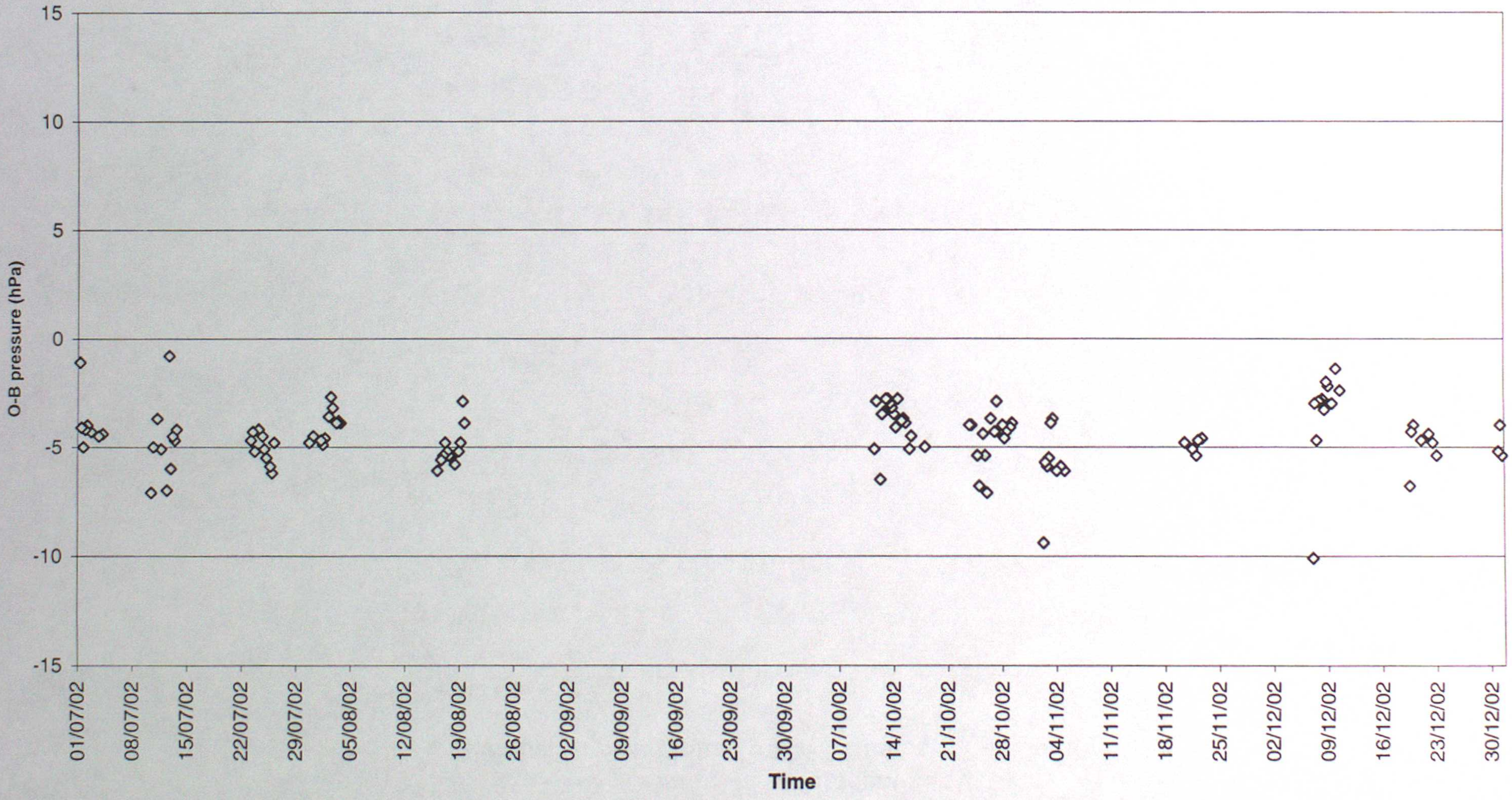
O-B pressure (hPa) for identifier UANF
Number of obs. plotted = 74   Number of outliers = 0



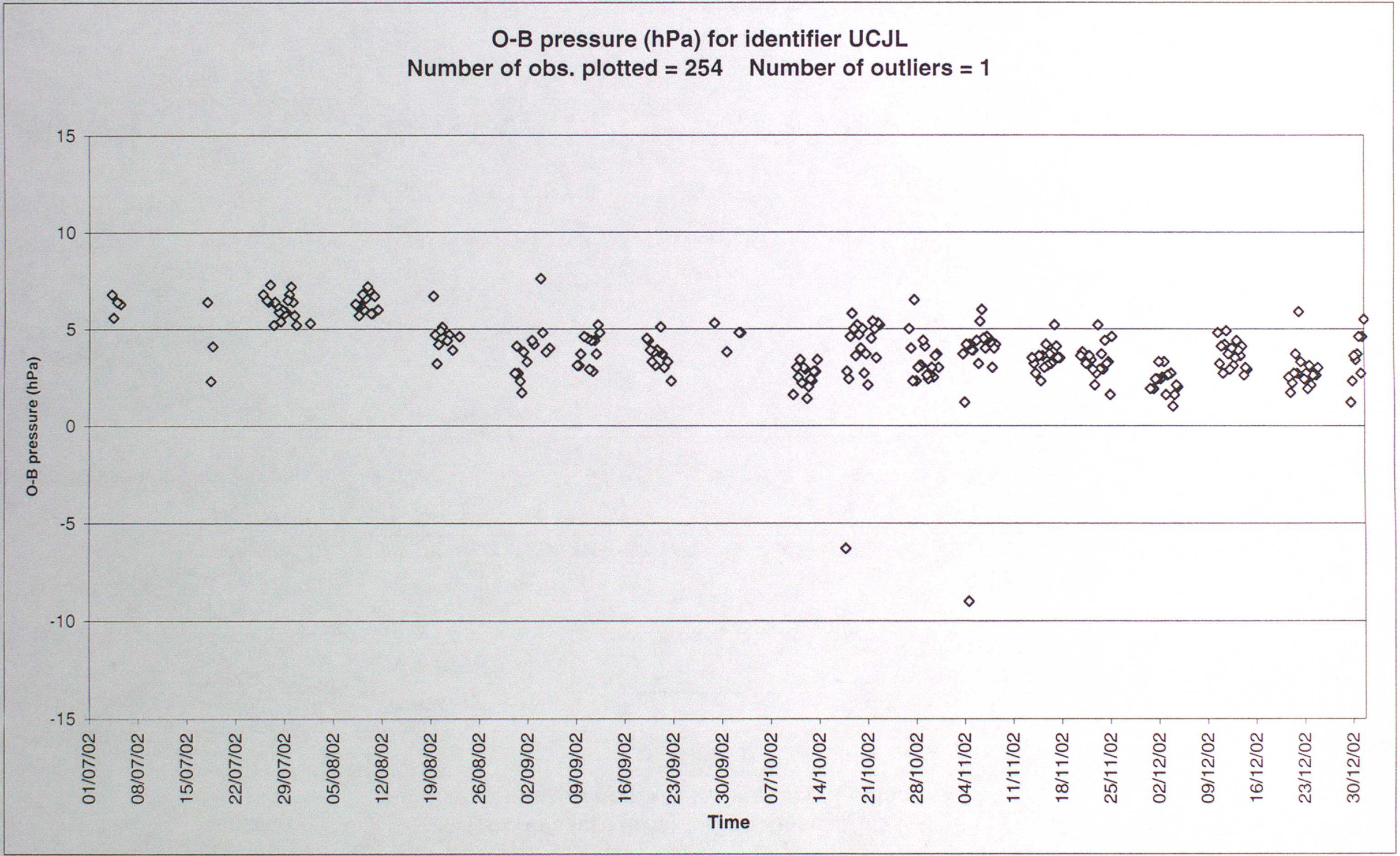
O-B pressure (hPa) for identifier UBAU
Number of obs. plotted = 62   Number of outliers = 0



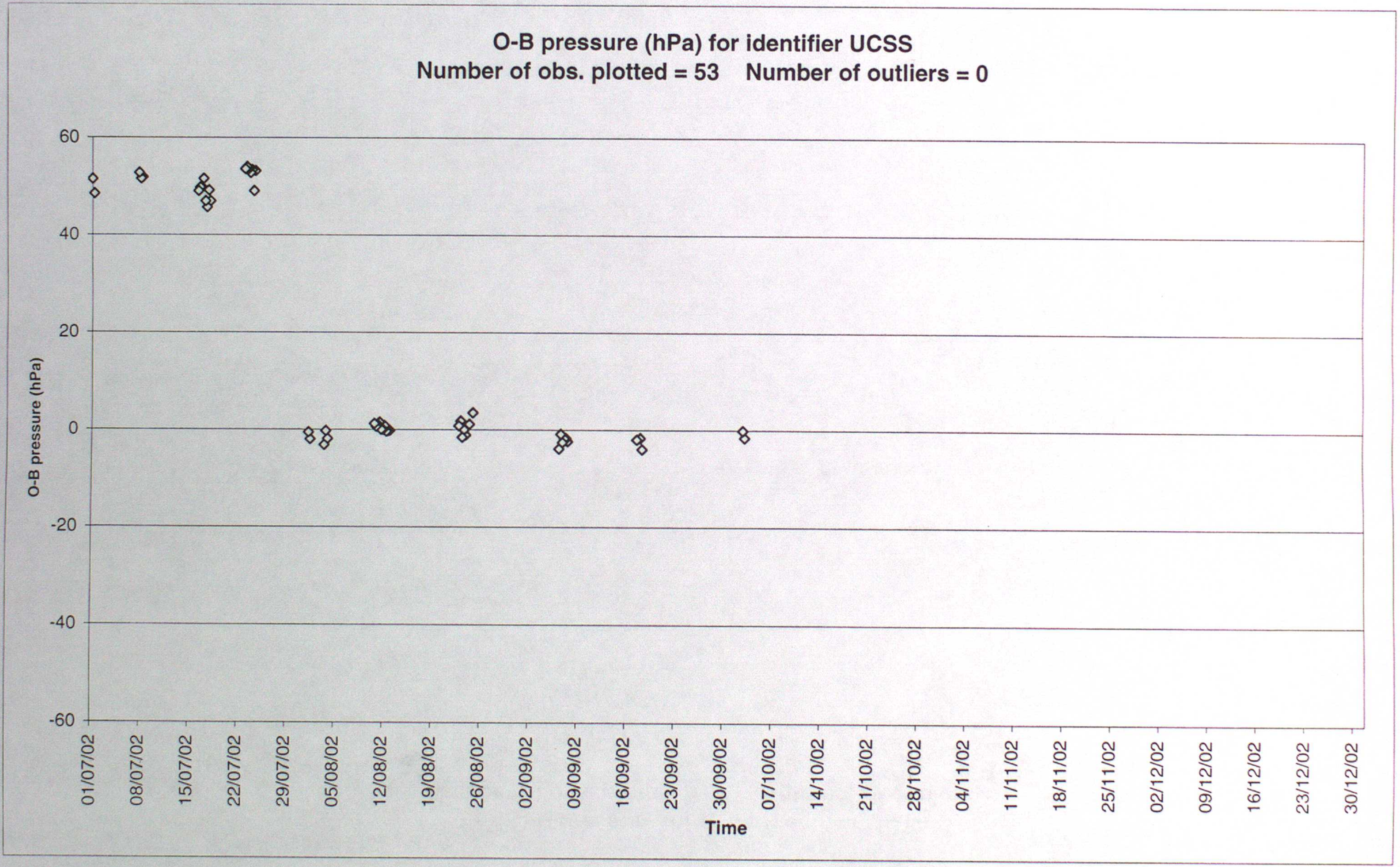

O-B pressure (hPa) for identifier UCAC
Number of obs. plotted = 76   Number of outliers = 1
O-B pressure (hPa)
15
10
5
0
-5
-10
-15
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time



O-B pressure (hPa) for identifier UCJB
Number of obs. plotted = 121   Number of outliers = 1

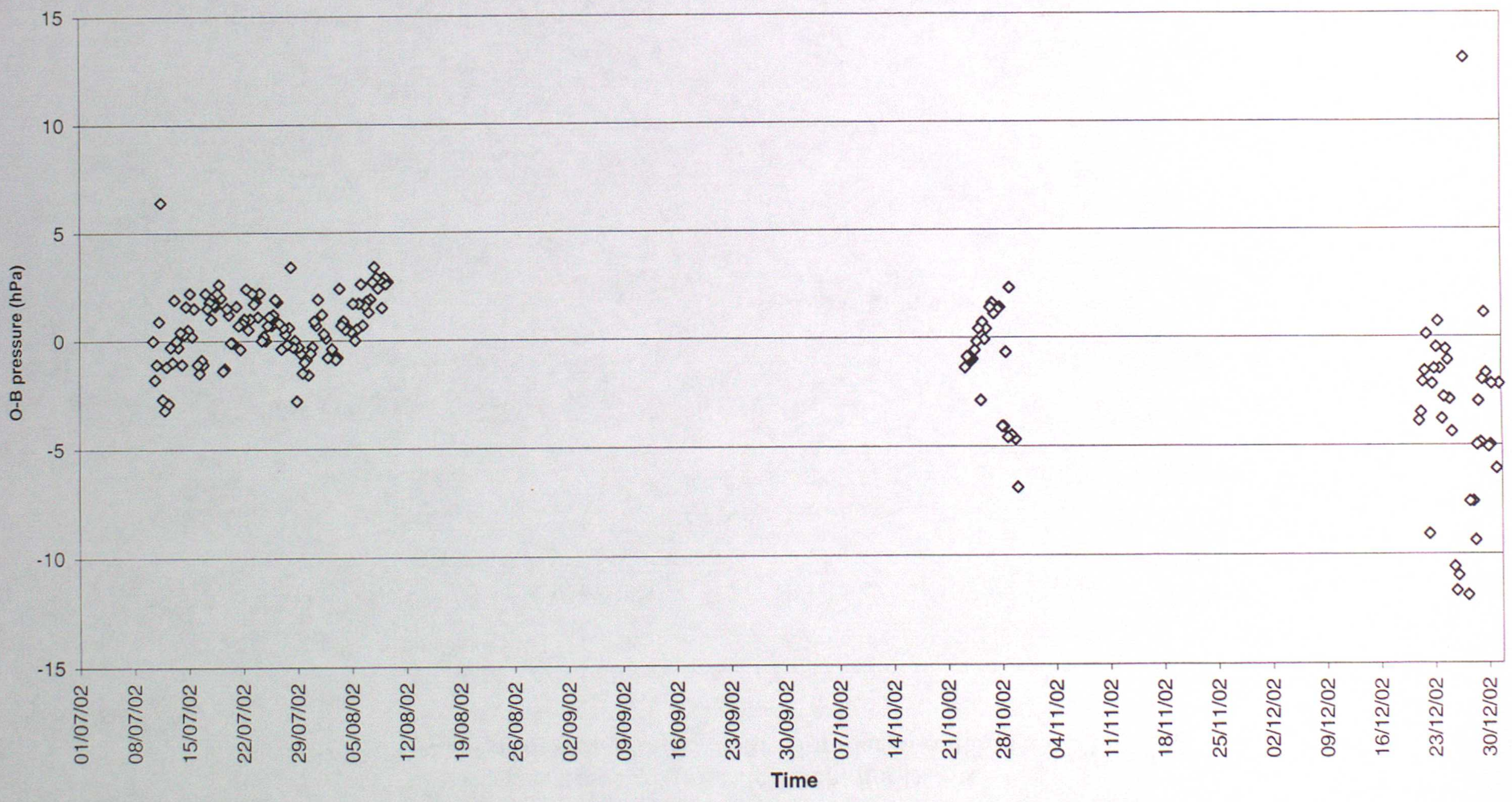


O-B pressure (hPa) for identifier UCJL
Number of obs. plotted = 254   Number of outliers = 1

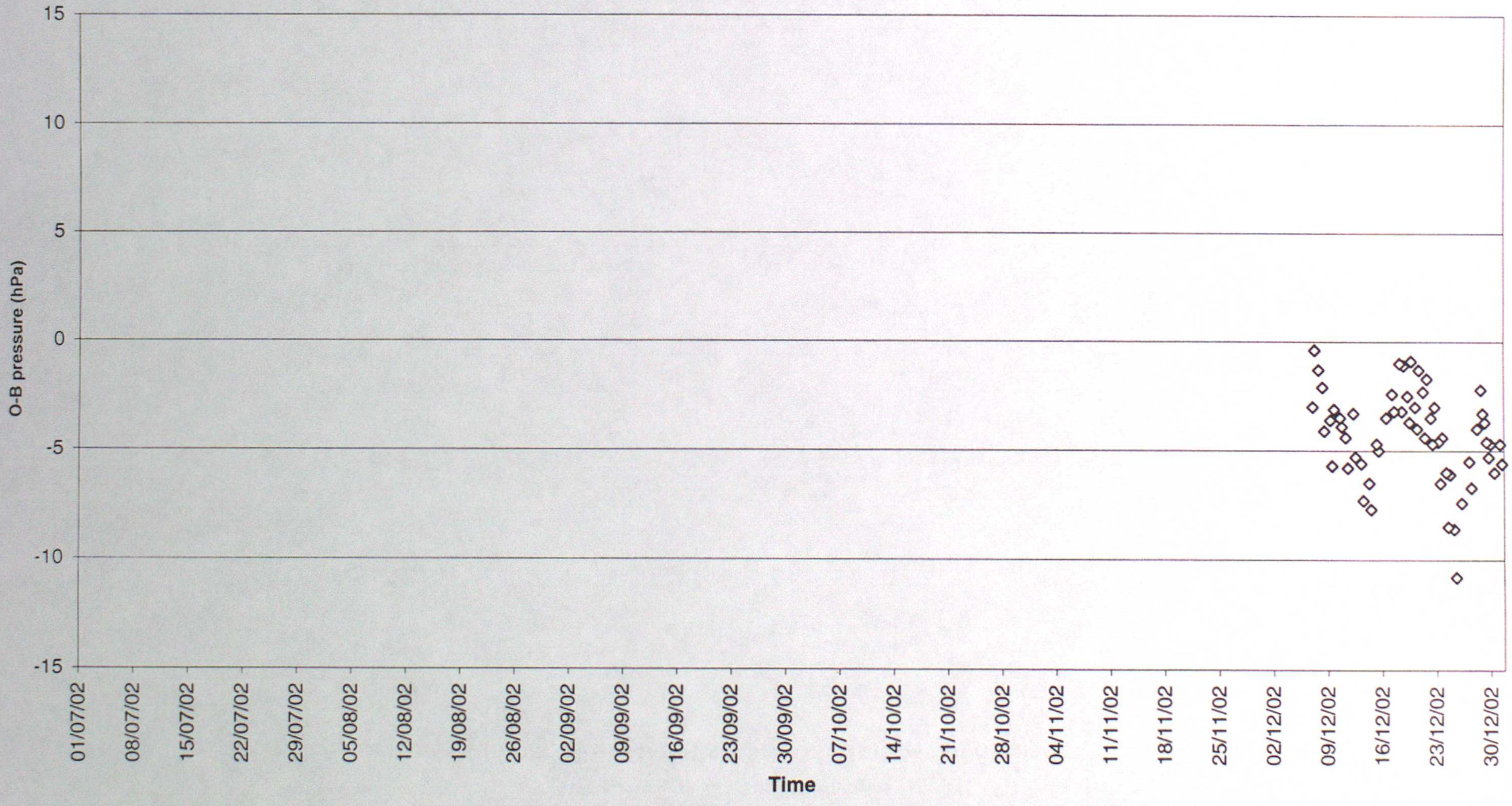


O-B pressure (hPa) for identifier UCSS
Number of obs. plotted = 53 Number of outliers = 0

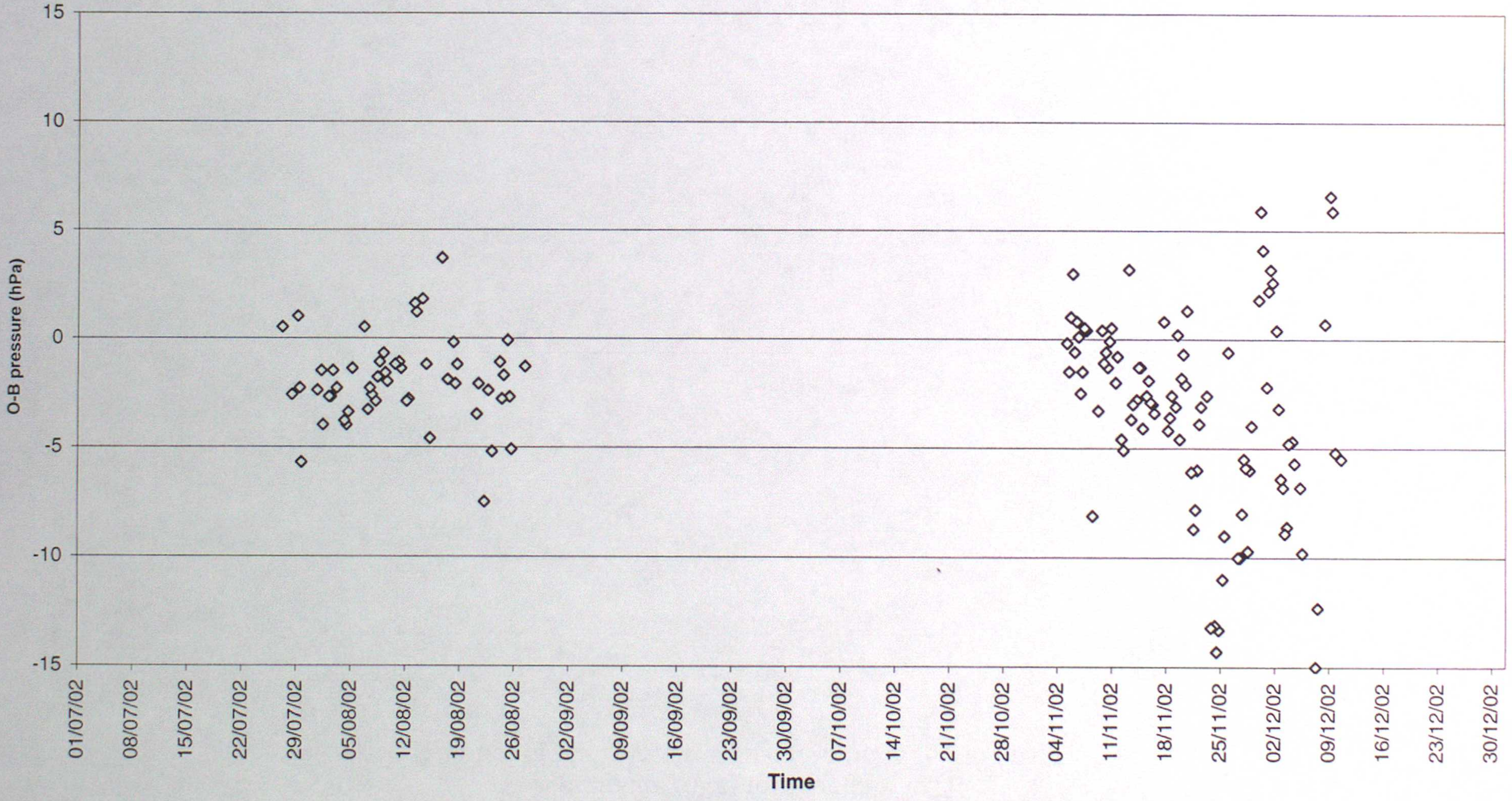
O-B pressure (hPa) for identifier UCTA
Number of obs. plotted = 177   Number of outliers = 1

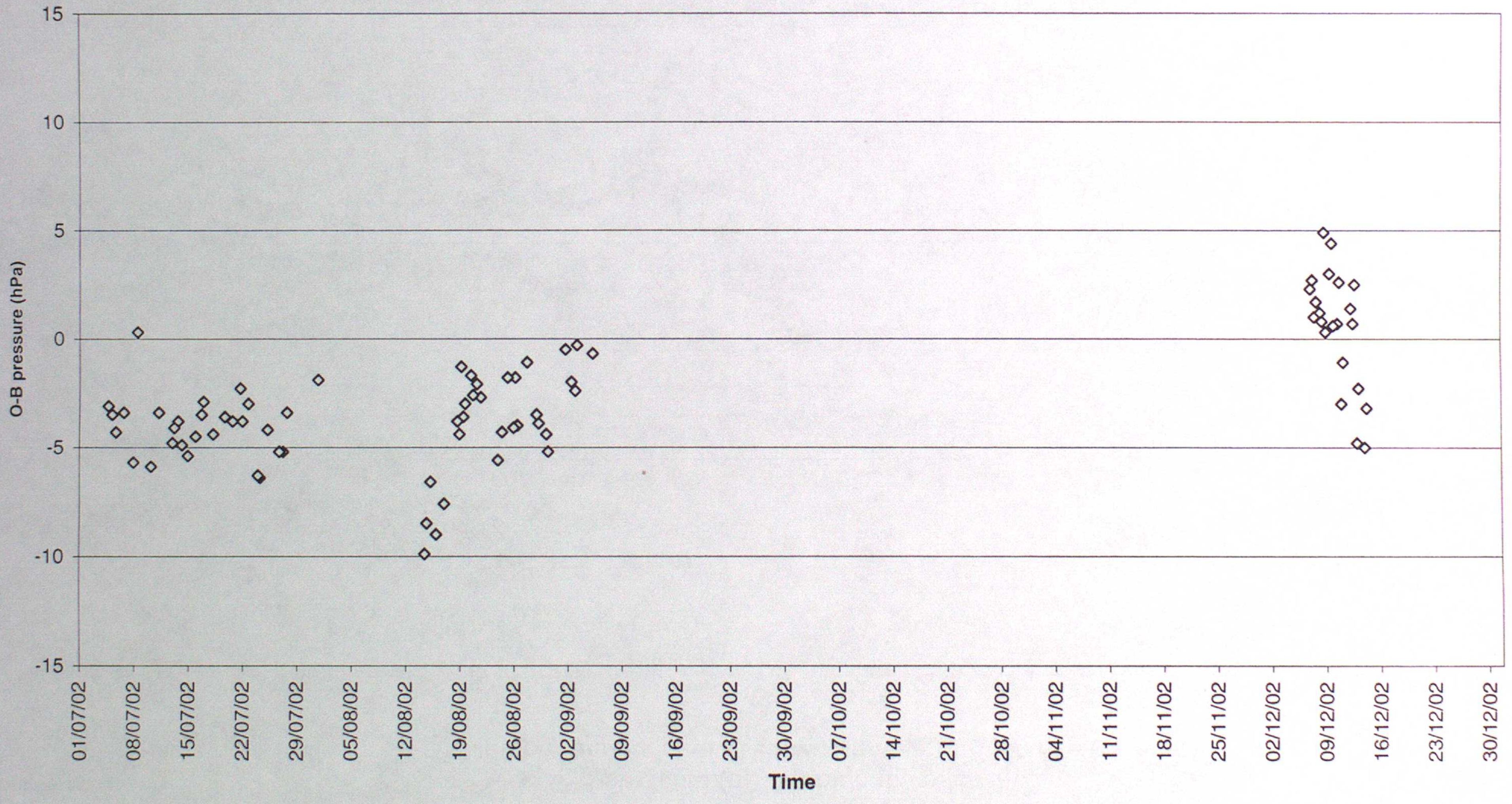


O-B pressure (hPa) for identifier UCTS
Number of obs. plotted = 59   Number of outliers = 0

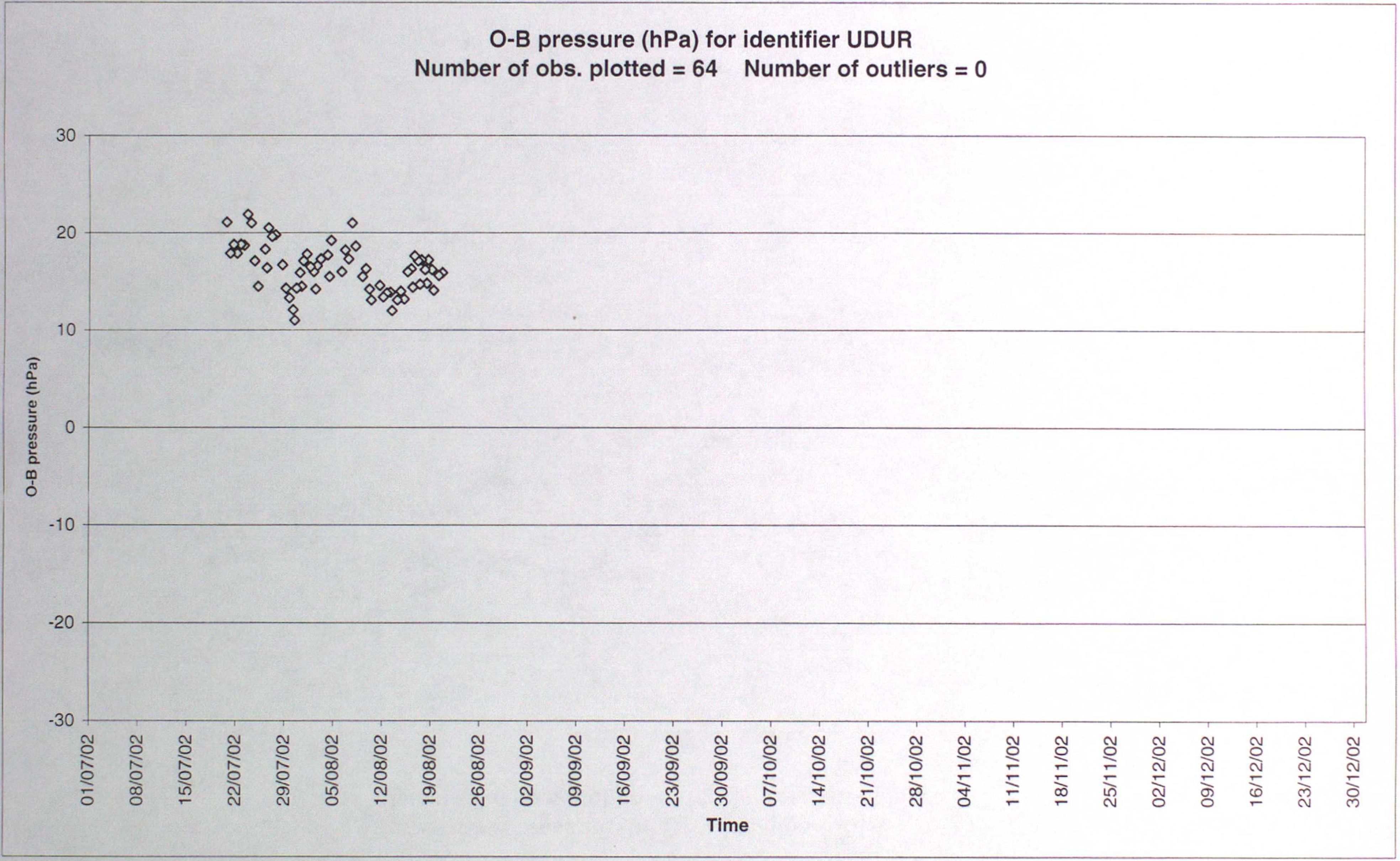


O-B pressure (hPa) for identifier UCUD
Number of obs. plotted = 146   Number of outliers = 4



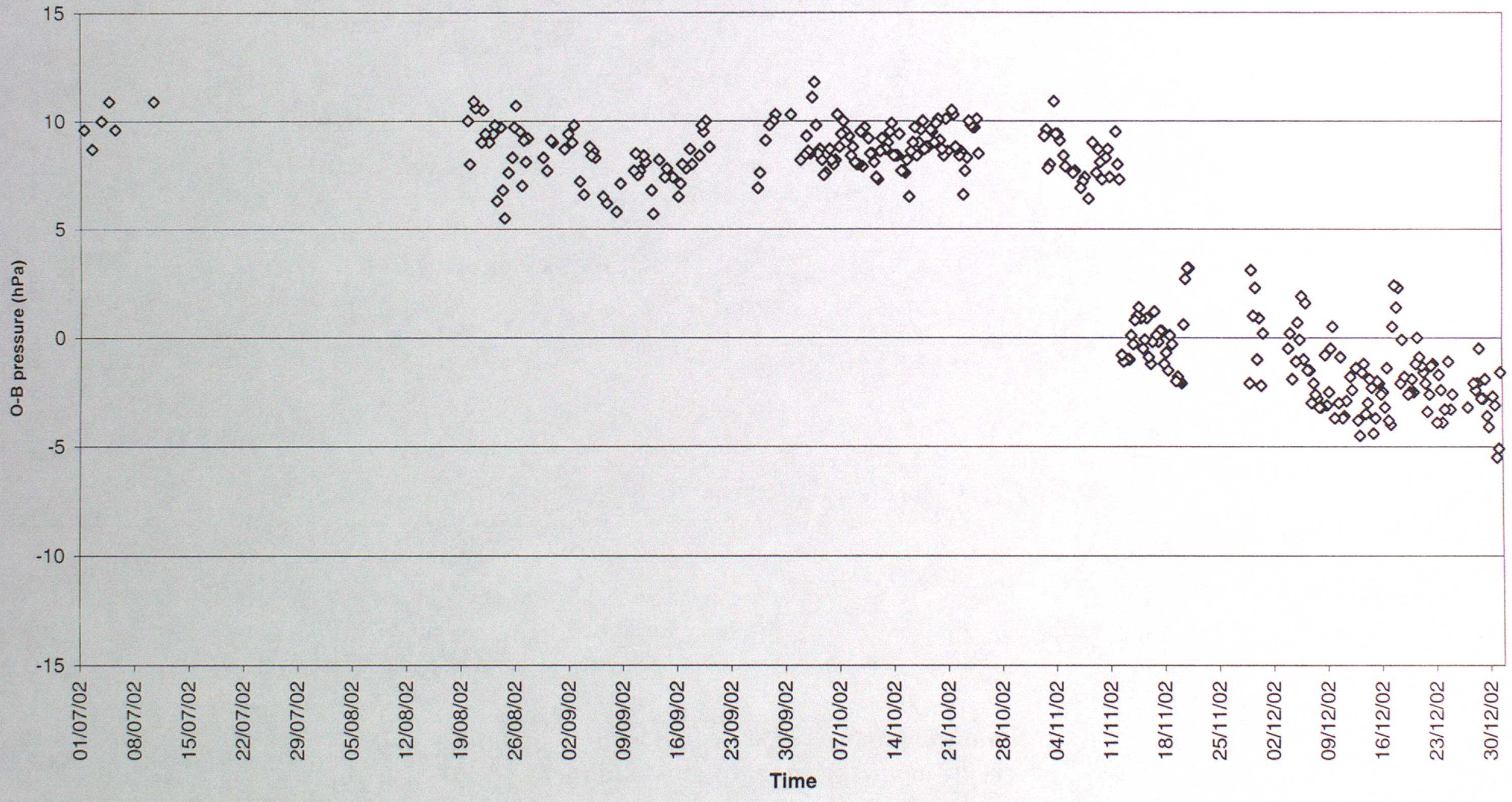


O-B pressure (hPa) for identifier UCUE
Number of obs. plotted = 81   Number of outliers = 0

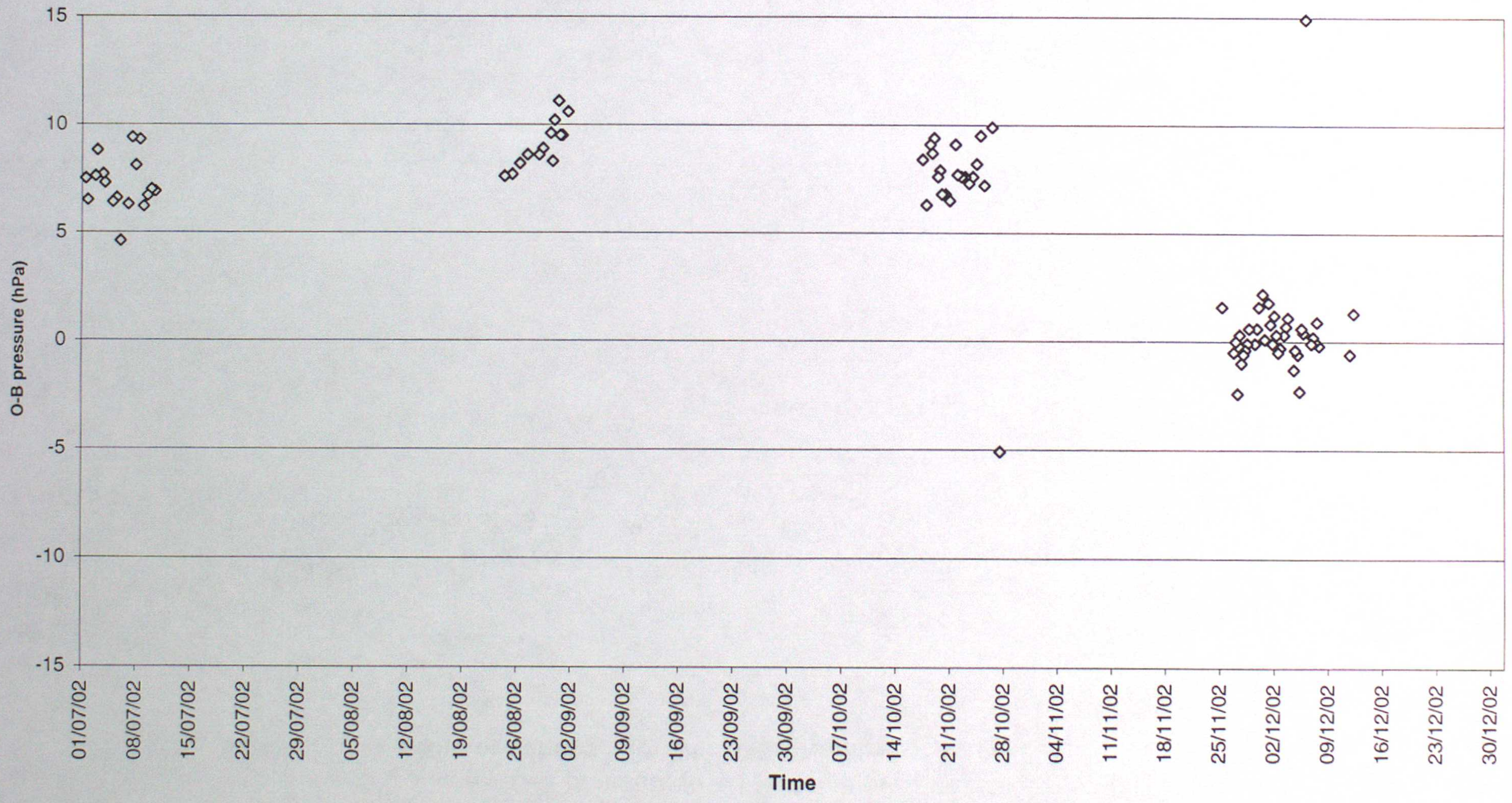


O-B pressure (hPa) for identifier UDUR
Number of obs. plotted = 64   Number of outliers = 0

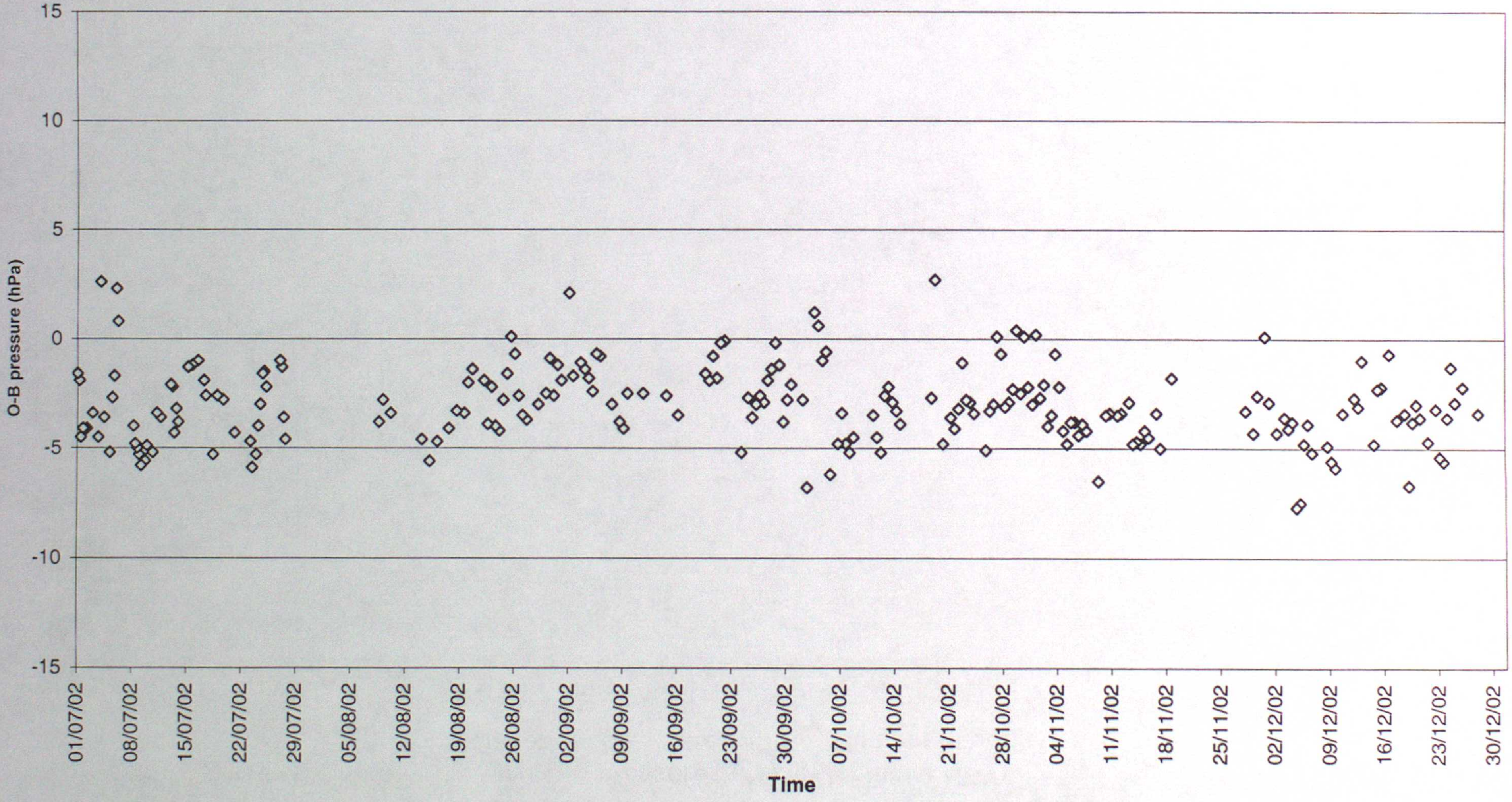
O-B pressure (hPa) for identifier UFAA
Number of obs. plotted = 326   Number of outliers = 0

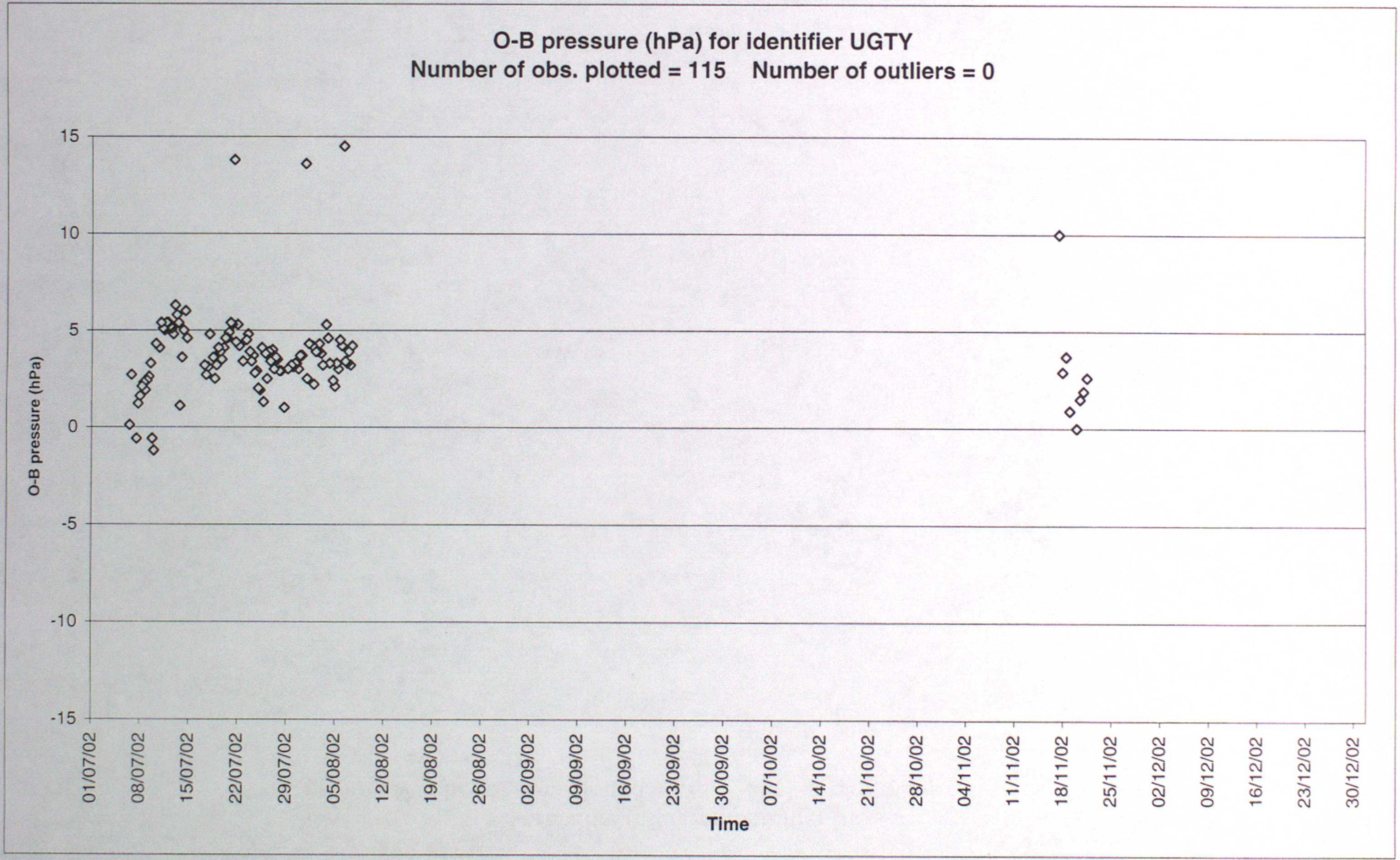


O-B pressure (hPa) for identifier UFNO
Number of obs. plotted = 90   Number of outliers = 1



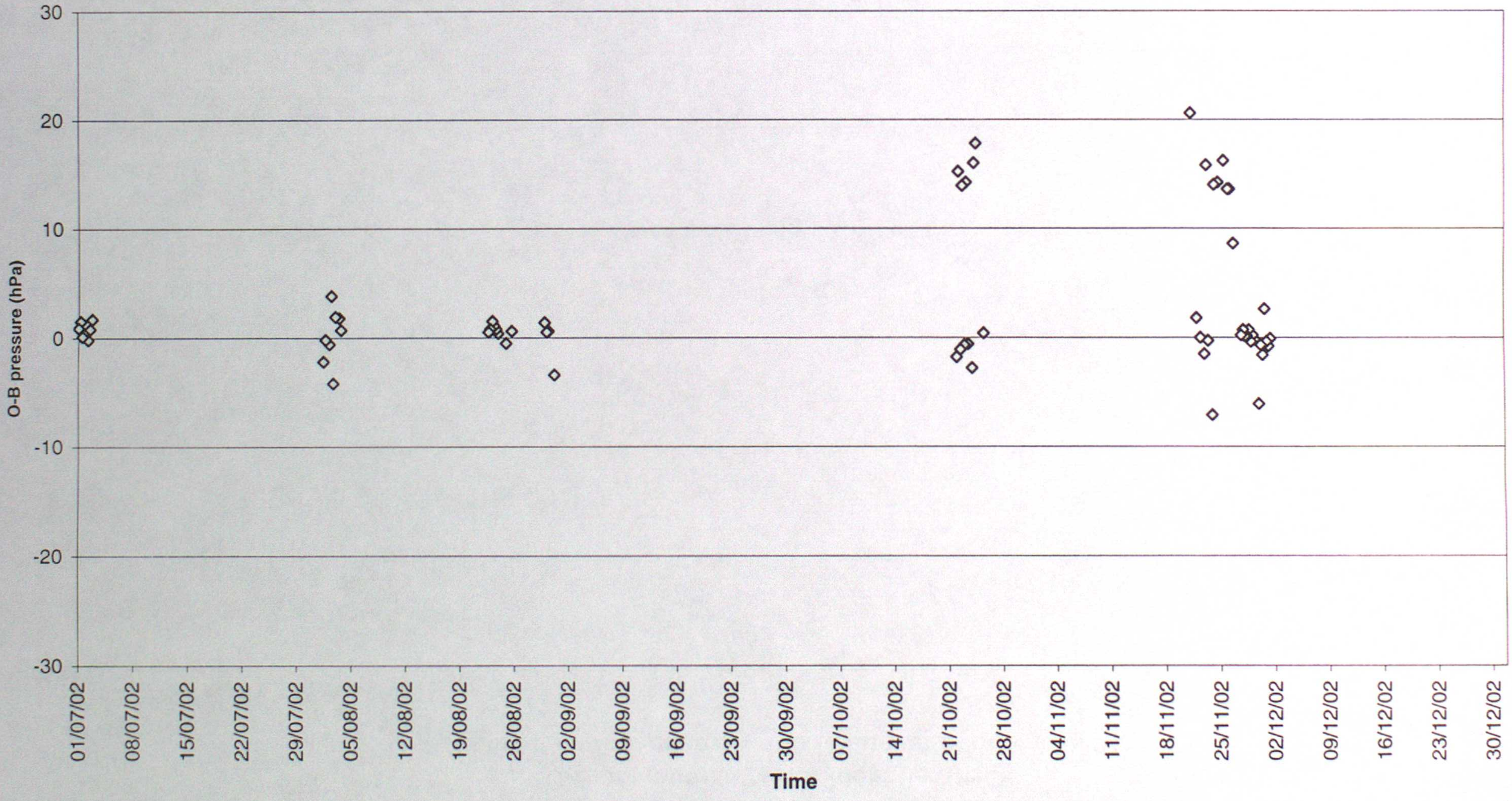
O-B pressure (hPa) for identifier UGGA
Number of obs. plotted = 226   Number of outliers = 0



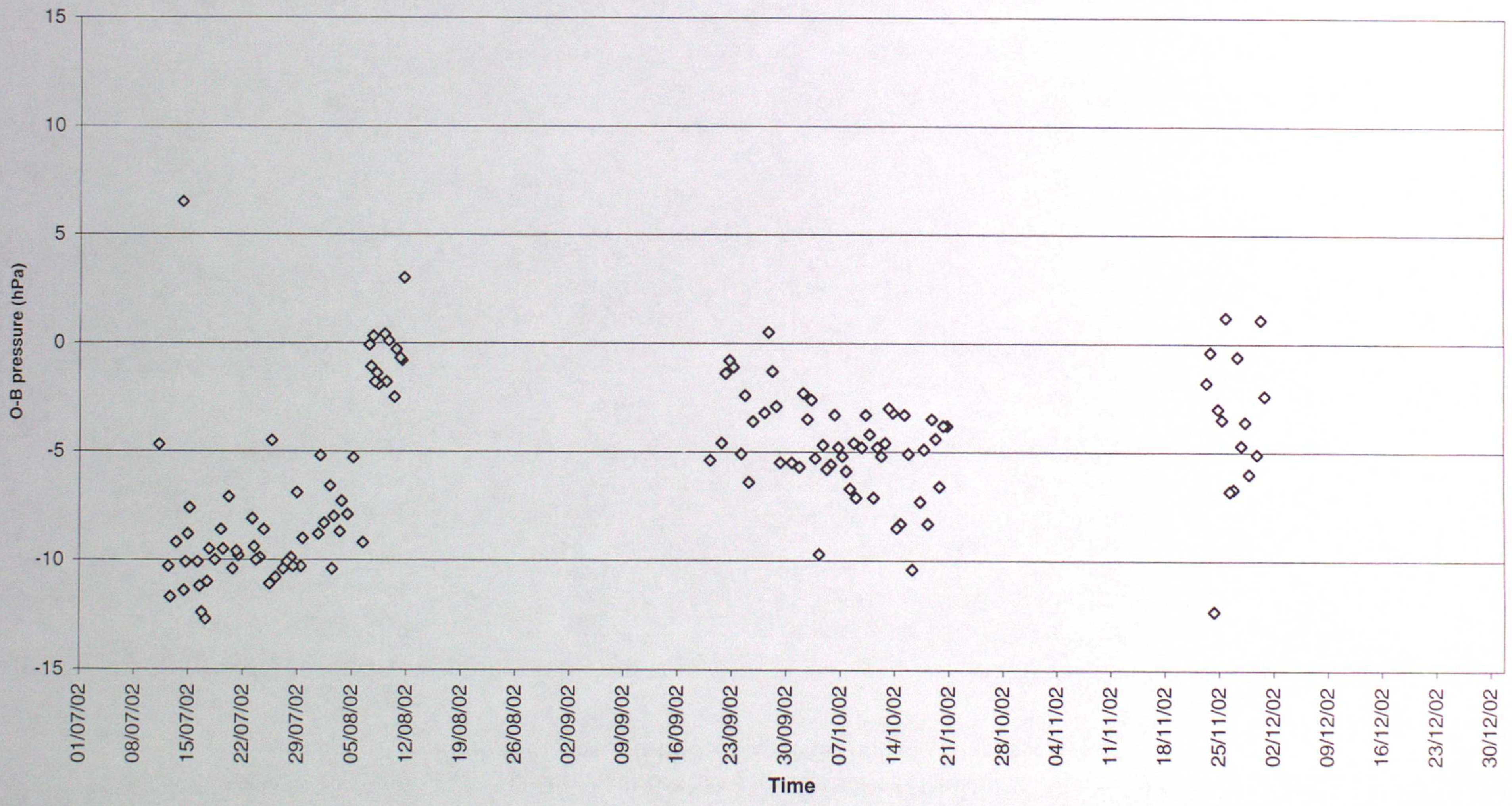

O-B pressure (hPa) for identifier UGTY
Number of obs. plotted = 115   Number of outliers = 0

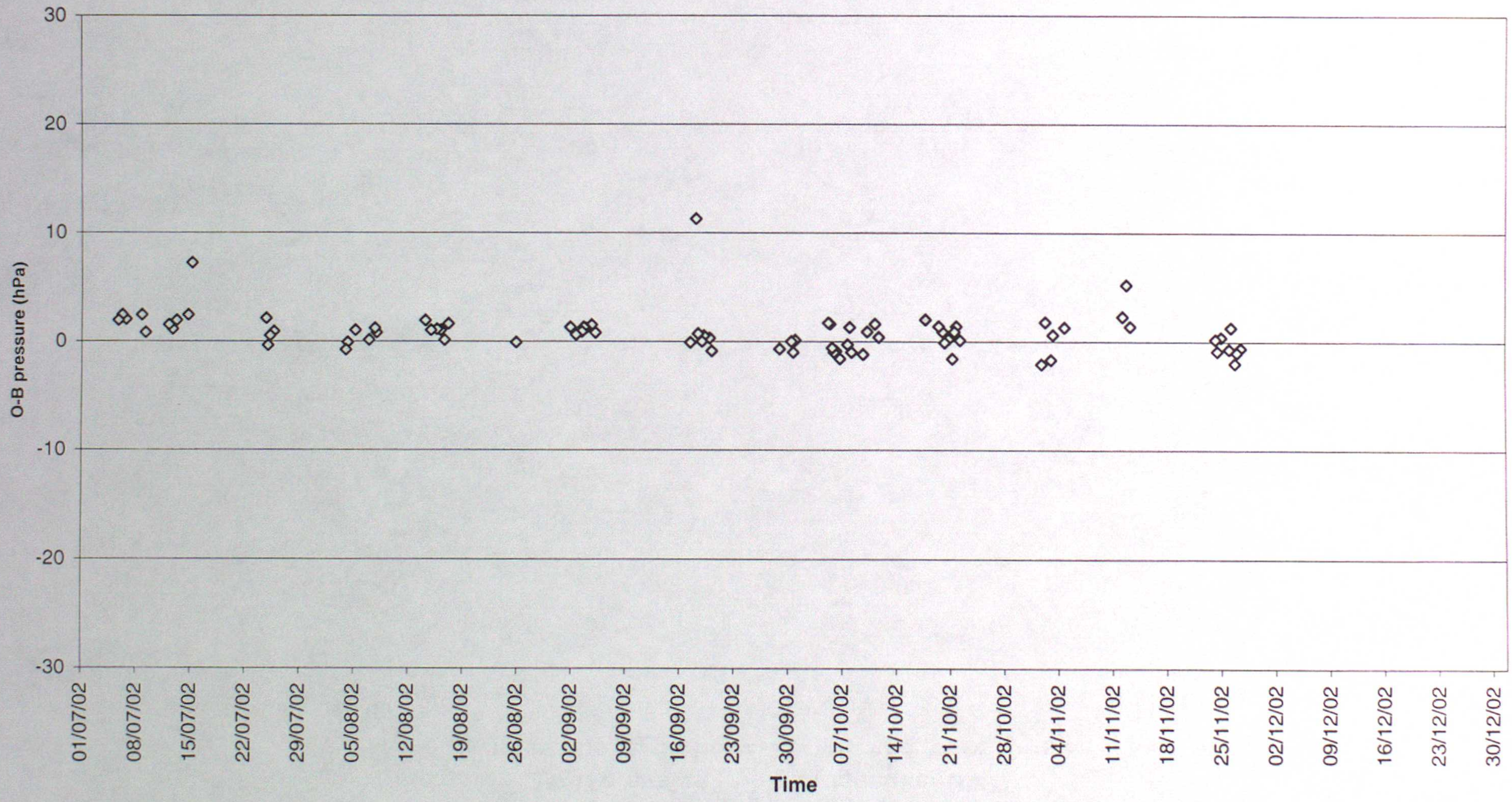
O-B pressure (hPa) for identifier UHJU

Number of obs. plotted = 65   Number of outliers = 0

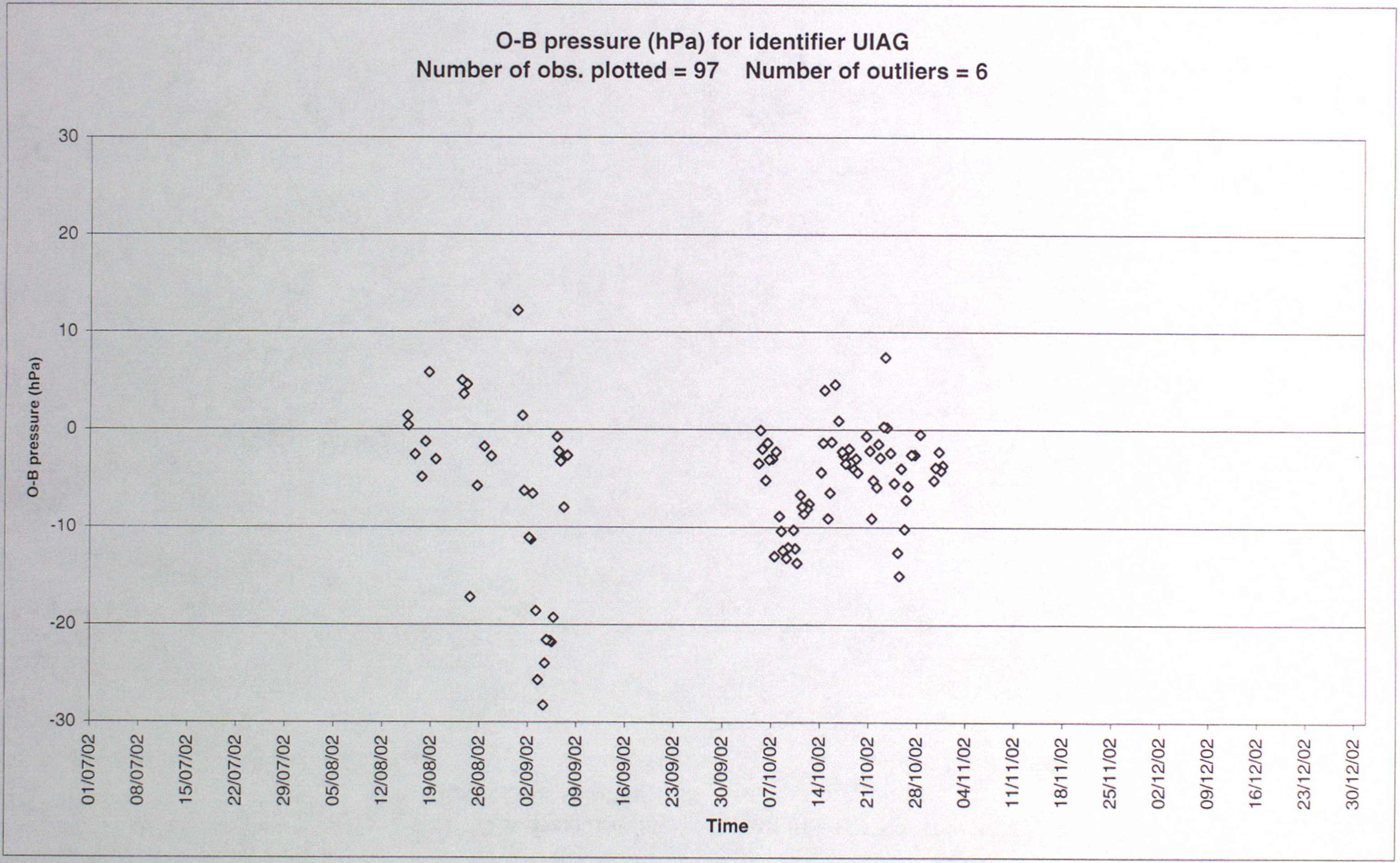


O-B pressure (hPa) for identifier UHLE
Number of obs. plotted = 130   Number of outliers = 2

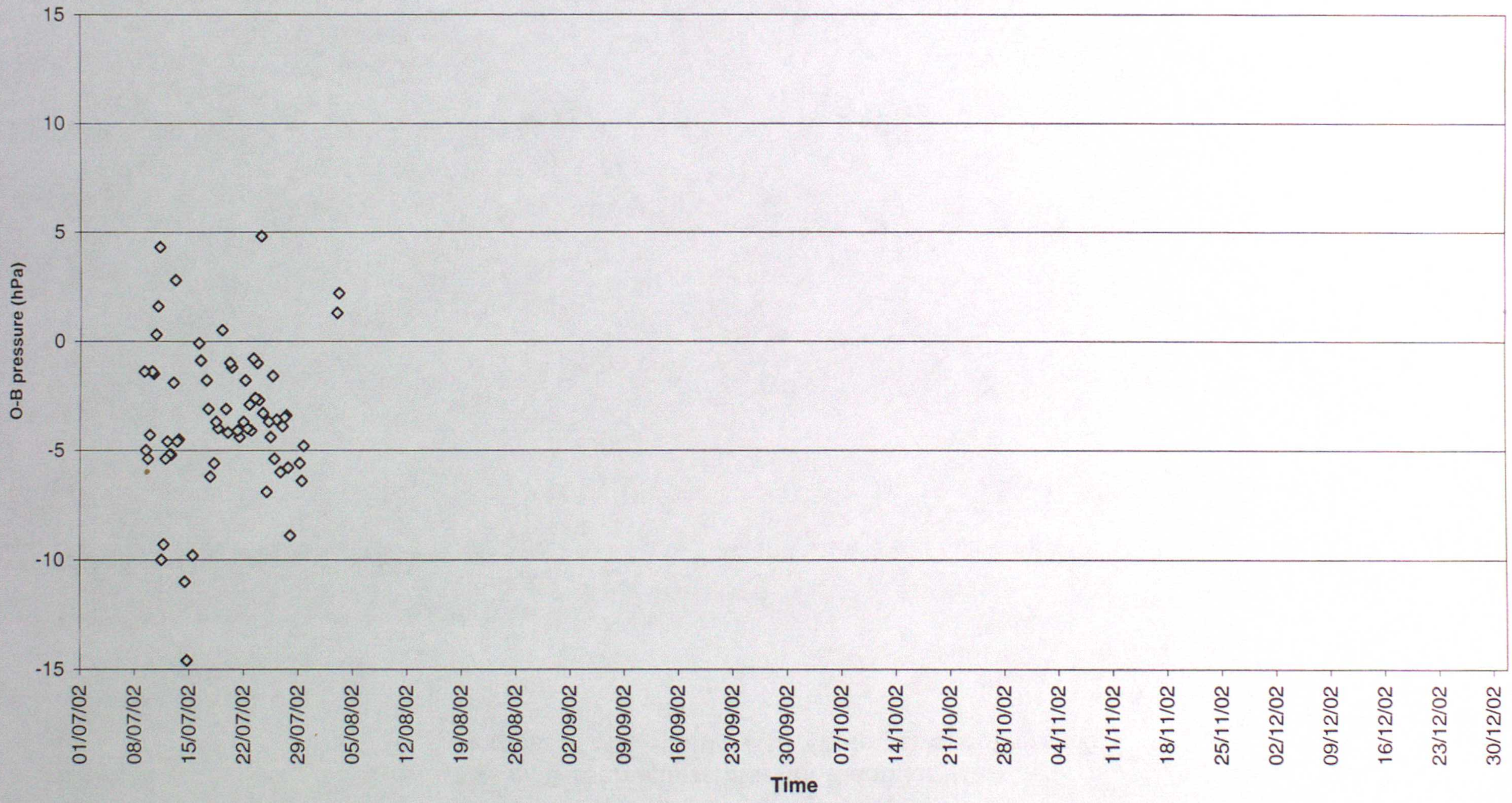


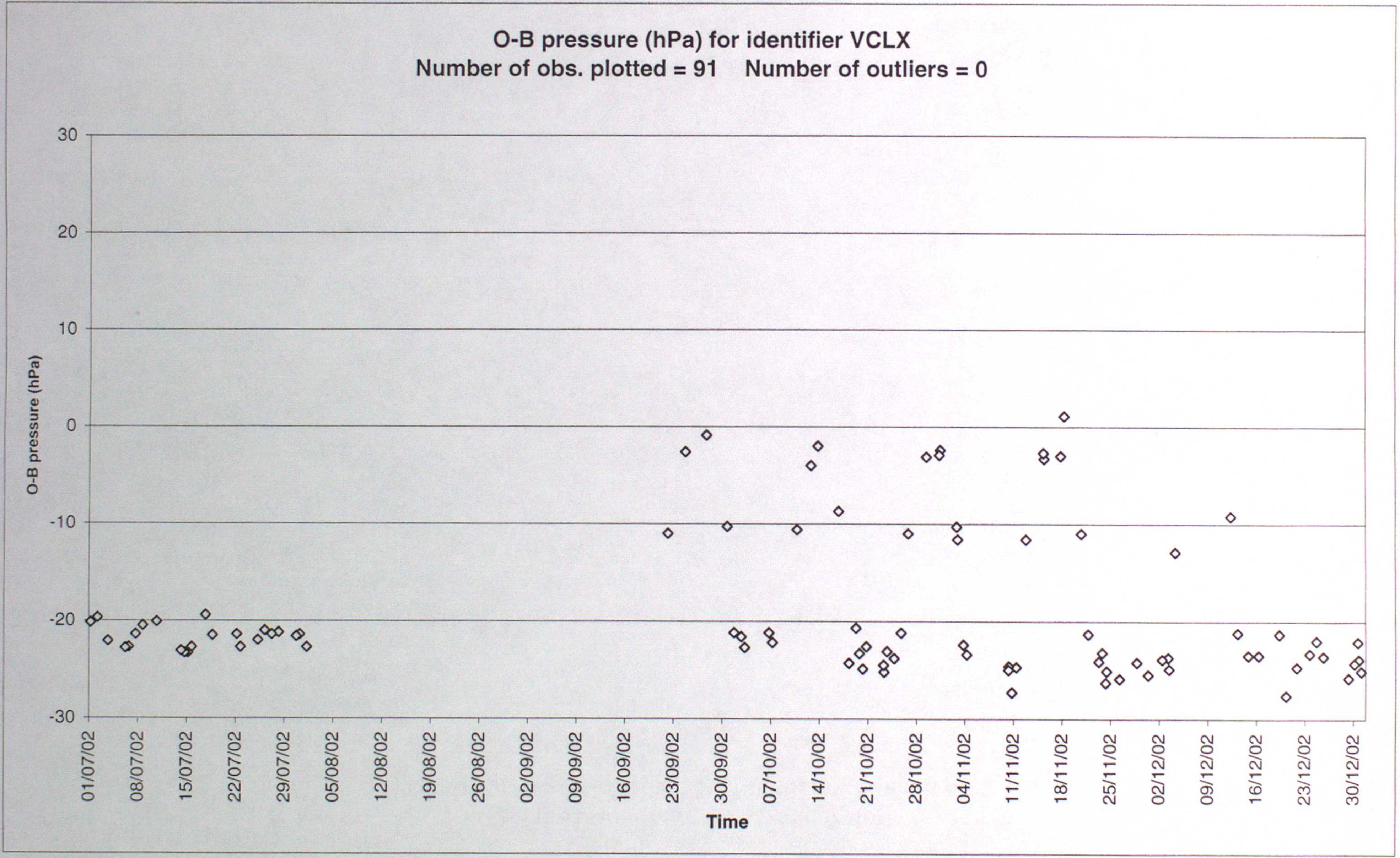


O-B pressure (hPa) for identifier UHRT
Number of obs. plotted = 83   Number of outliers = 11

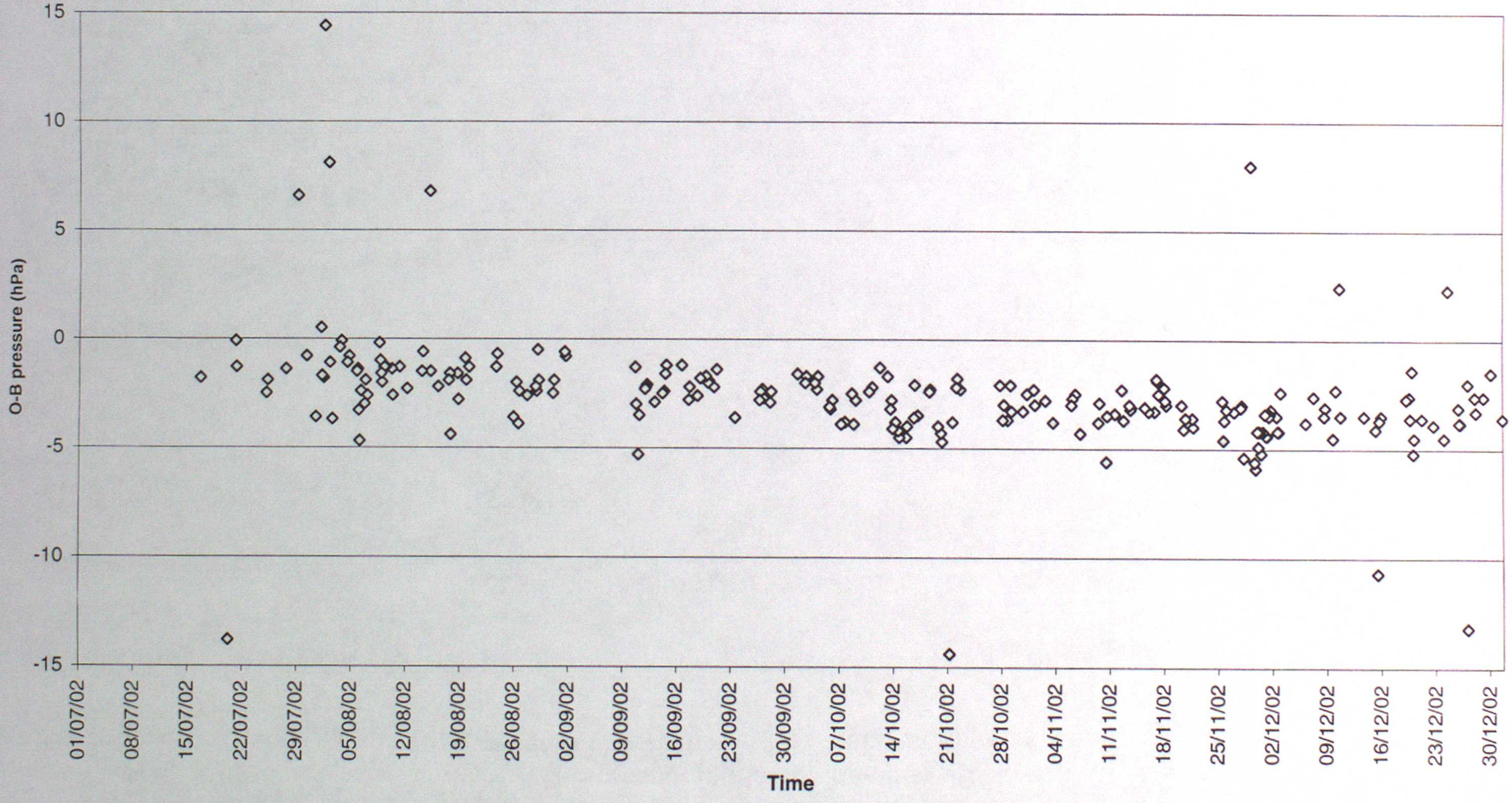

O-B pressure (hPa) for identifier UIAG
Number of obs. plotted = 97   Number of outliers = 6
O-B pressure (hPa)
30
20
10
0
-10
-20
-30
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

O-B pressure (hPa) for identifier UIAI
Number of obs. plotted = 65   Number of outliers = 1


]

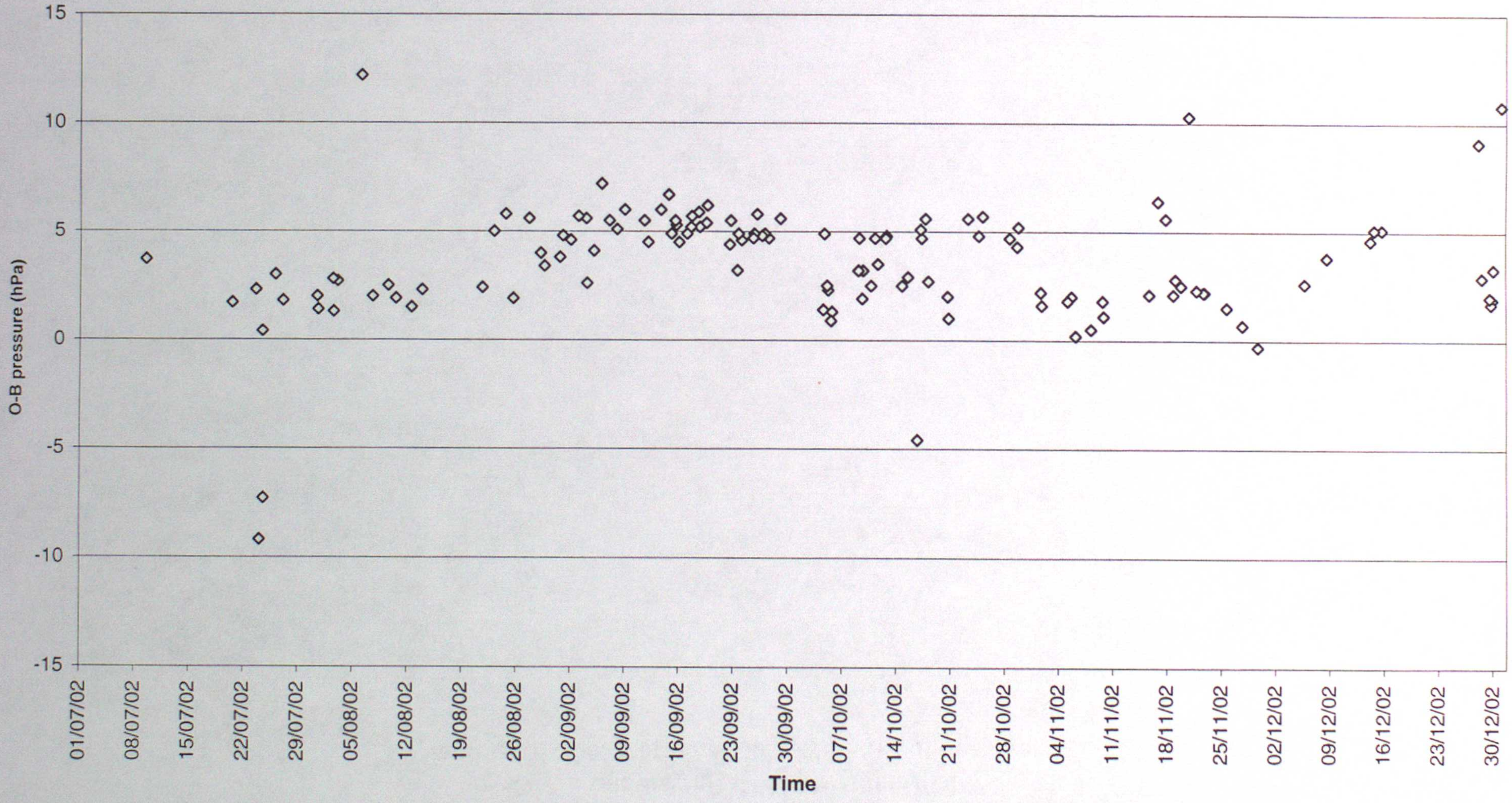


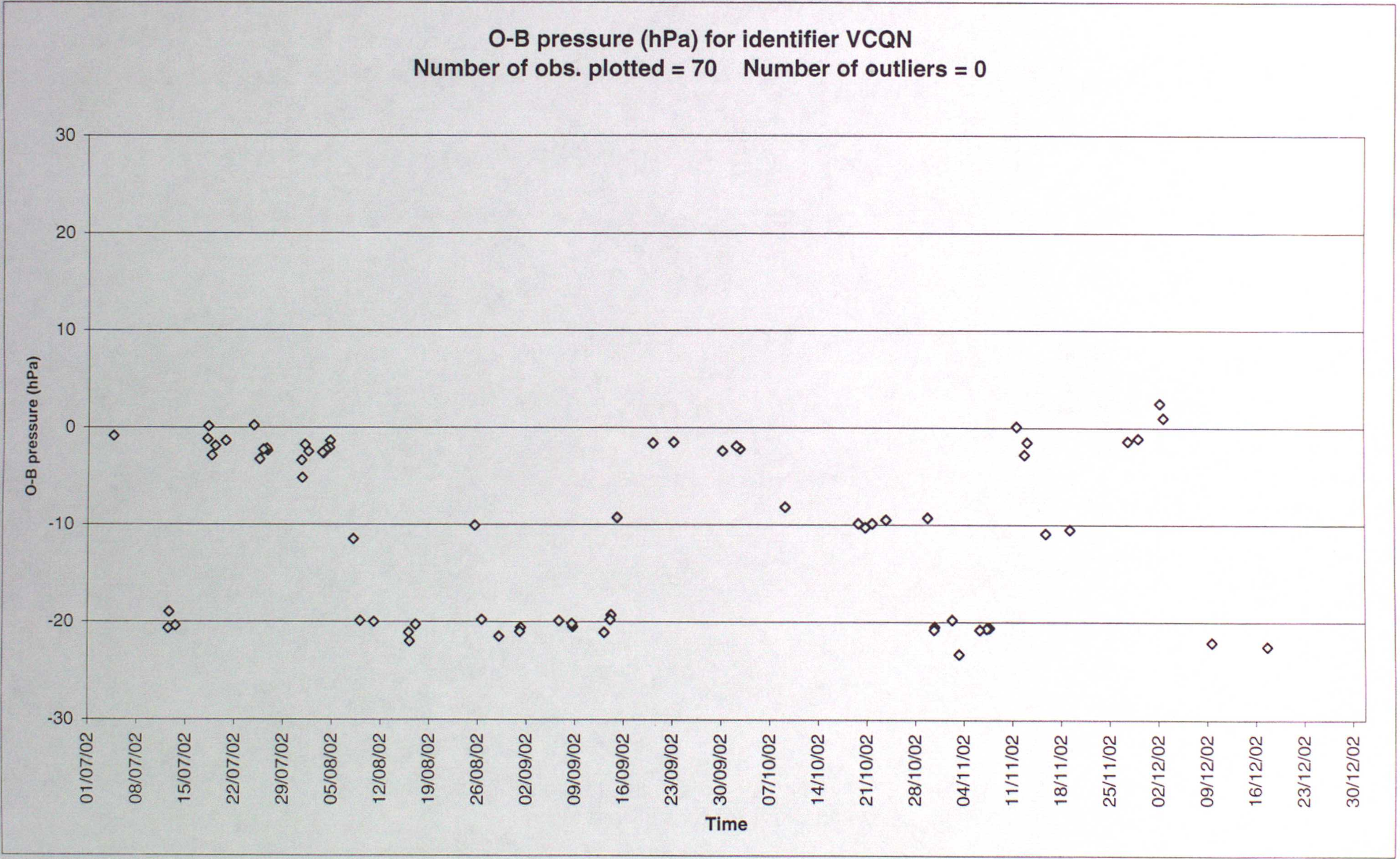
O-B pressure (hPa) for identifier VCLX
Number of obs. plotted = 91   Number of outliers = 0



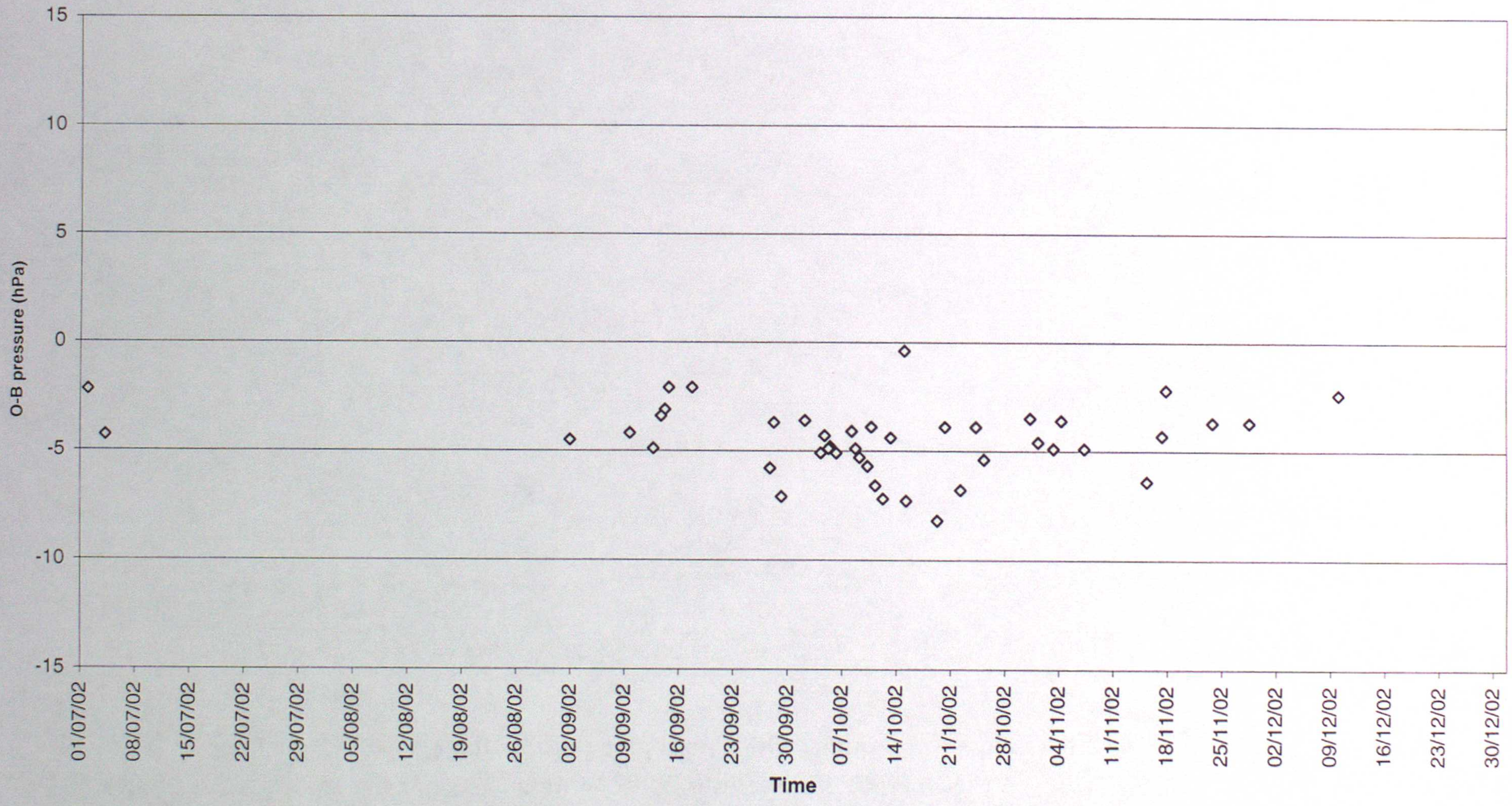
O-B pressure (hPa) for identifier VCPX
Number of obs. plotted = 234   Number of outliers = 2

O-B pressure (hPa) for identifier VCQM
Number of obs. plotted = 127   Number of outliers = 4

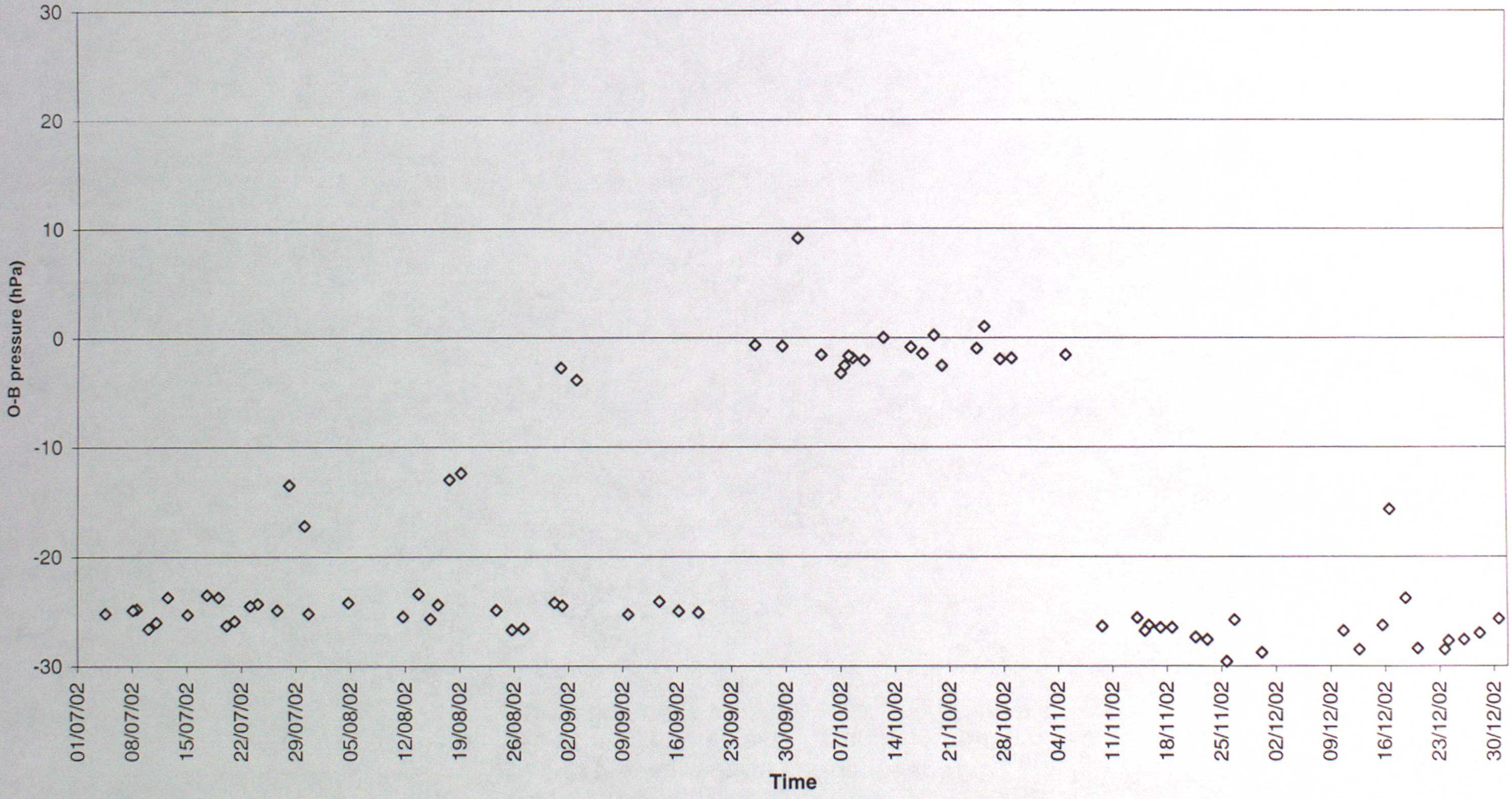


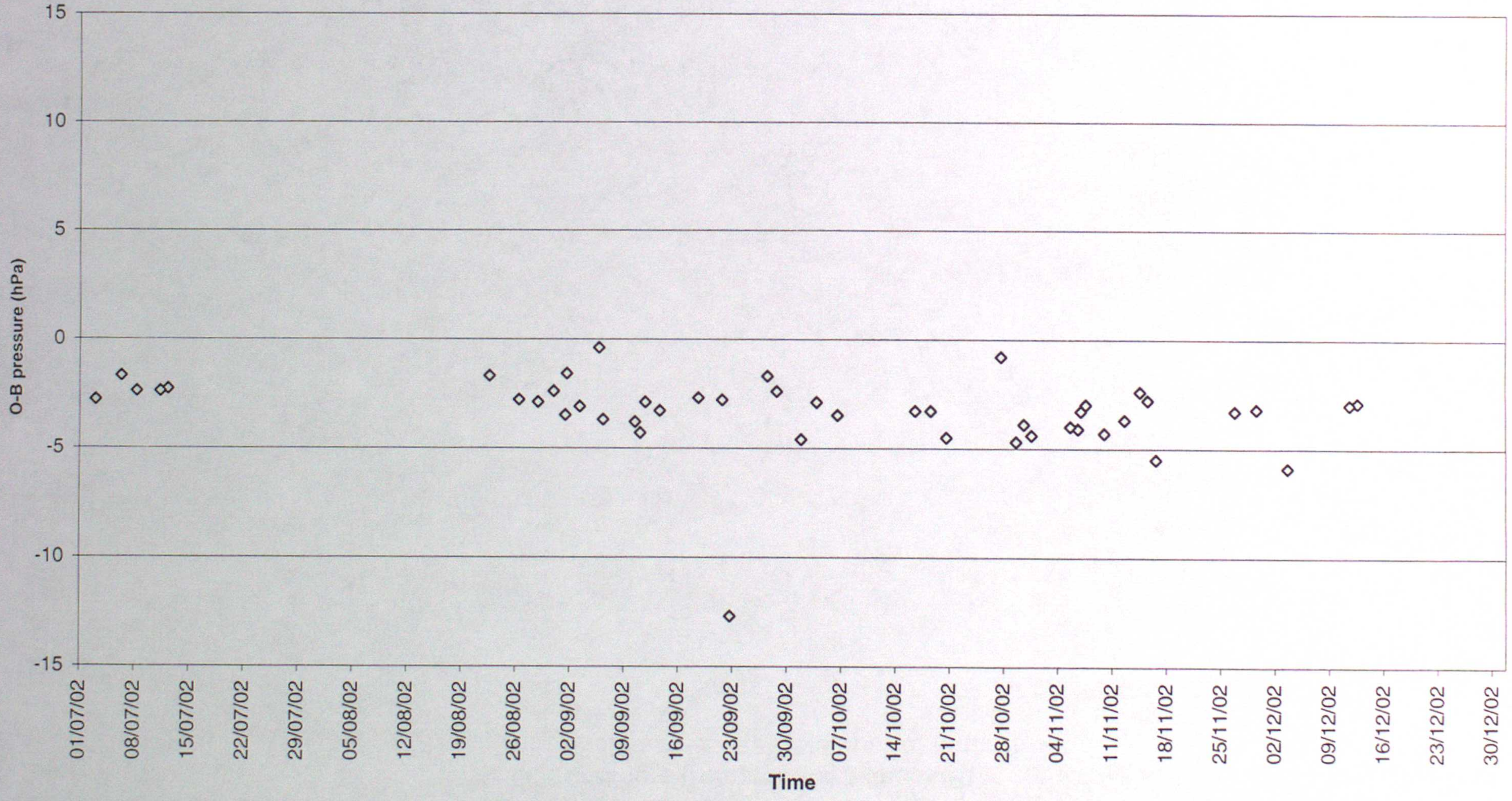

O-B pressure (hPa) for identifier VCQN
Number of obs. plotted = 70   Number of outliers = 0

O-B pressure (hPa) for identifier VCRT
Number of obs. plotted = 44   Number of outliers = 0



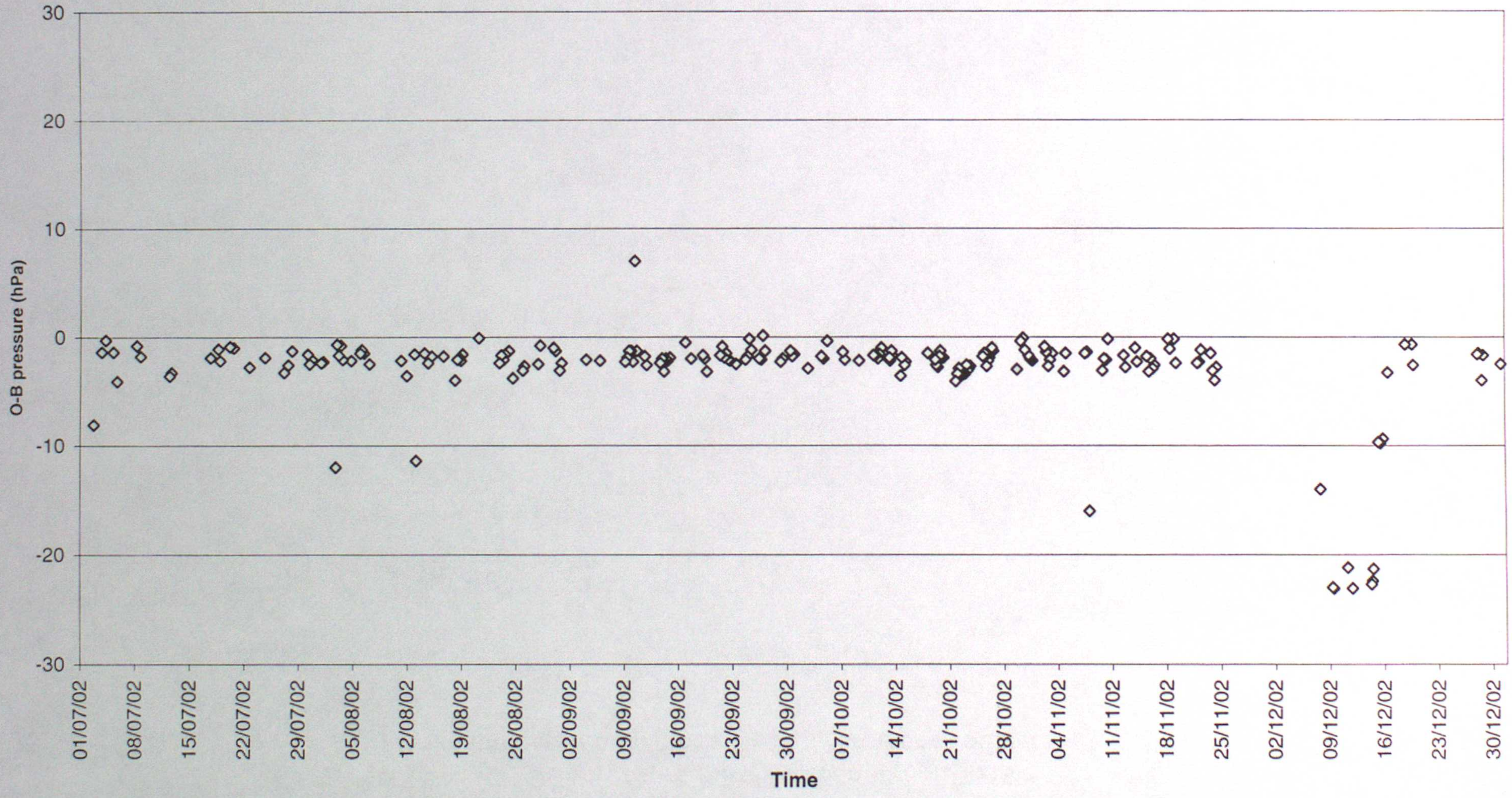
O-B pressure (hPa) for identifier VDRC
Number of obs. plotted = 76   Number of outliers = 0



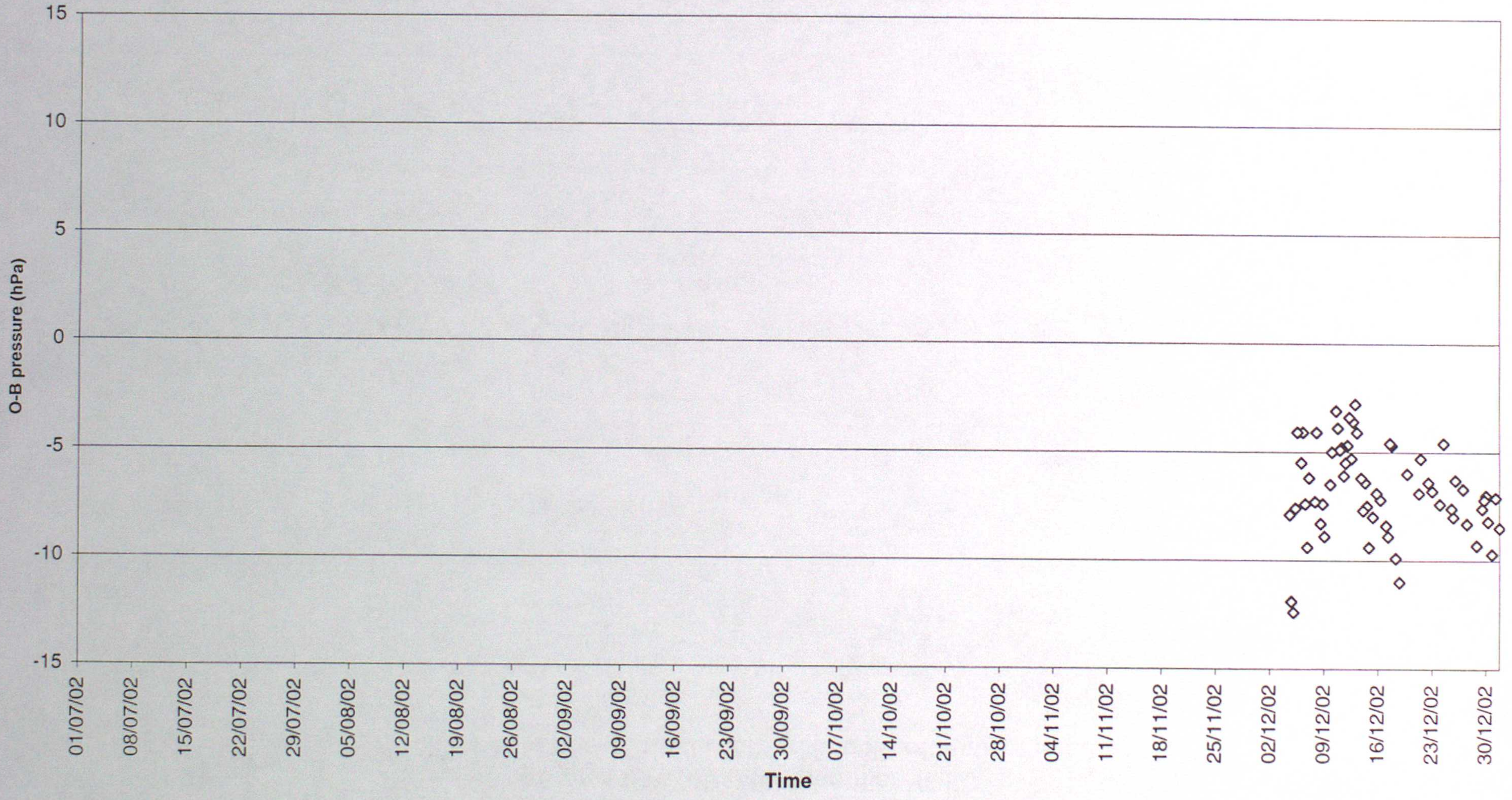


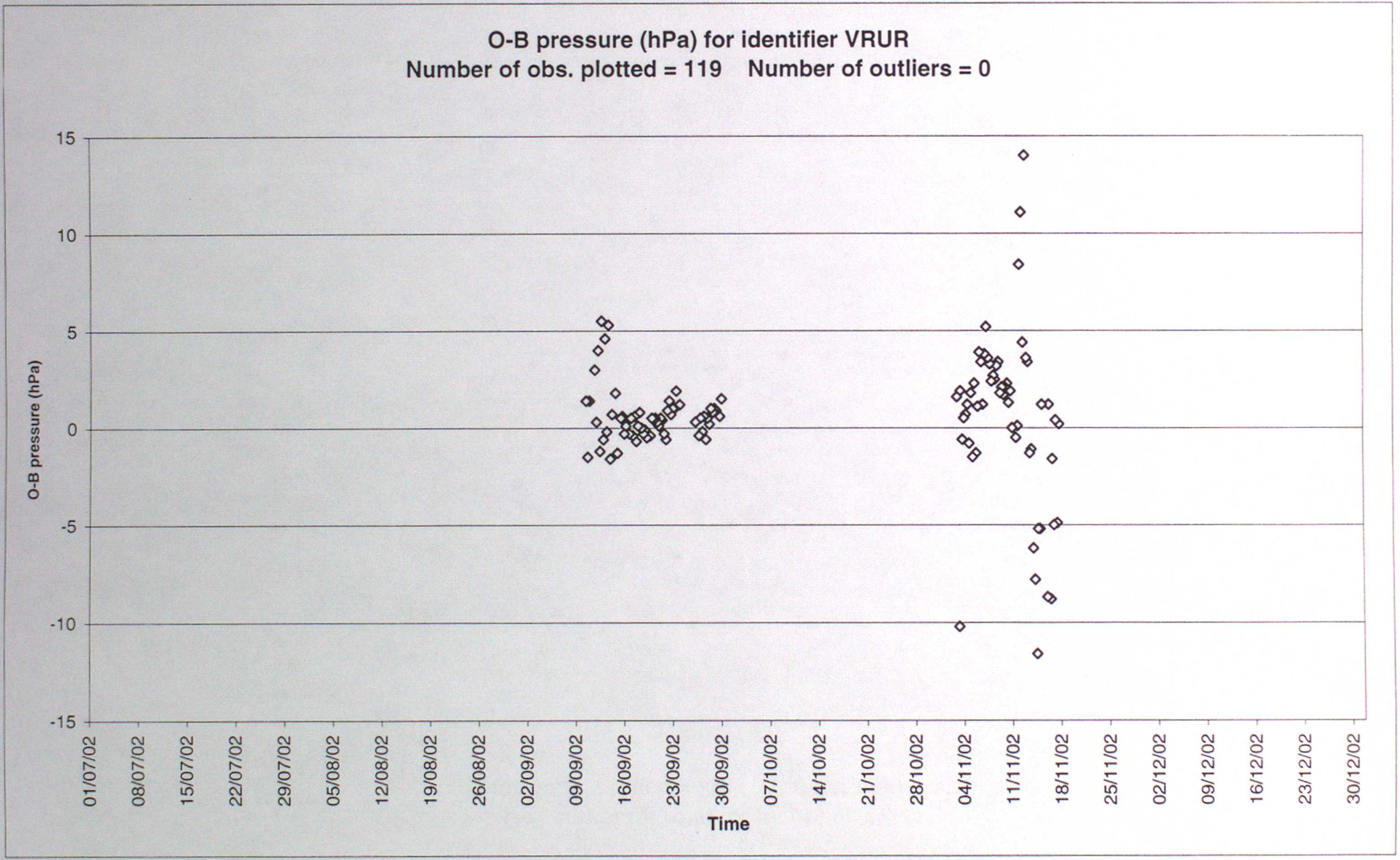
O-B pressure (hPa) for identifier VGDT
Number of obs. plotted = 47   Number of outliers = 0

O-B pressure (hPa) for identifier VGFQ
Number of obs. plotted = 213   Number of outliers = 0

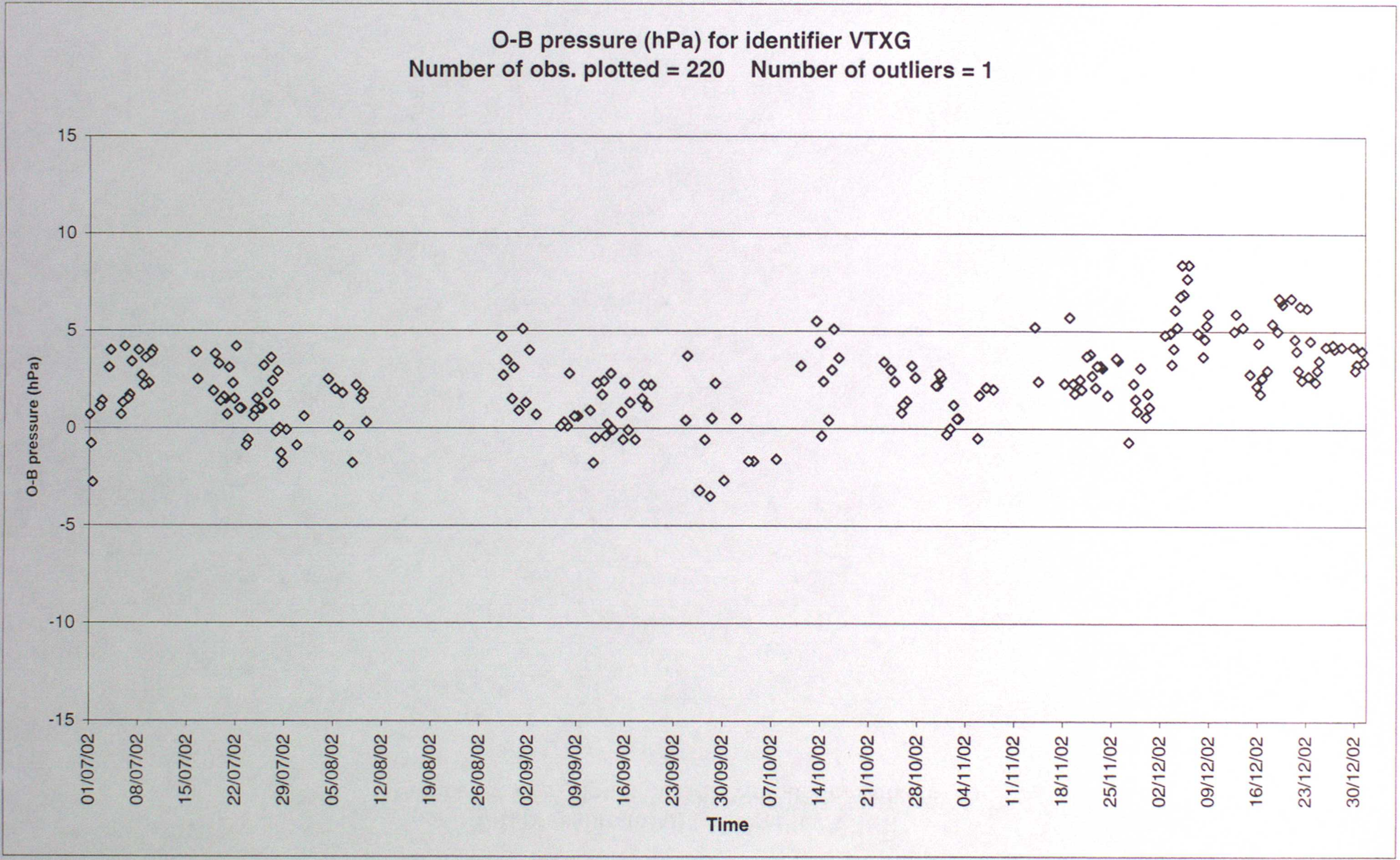


O-B pressure (hPa) for identifier VJT6198
Number of obs. plotted = 63   Number of outliers = 1



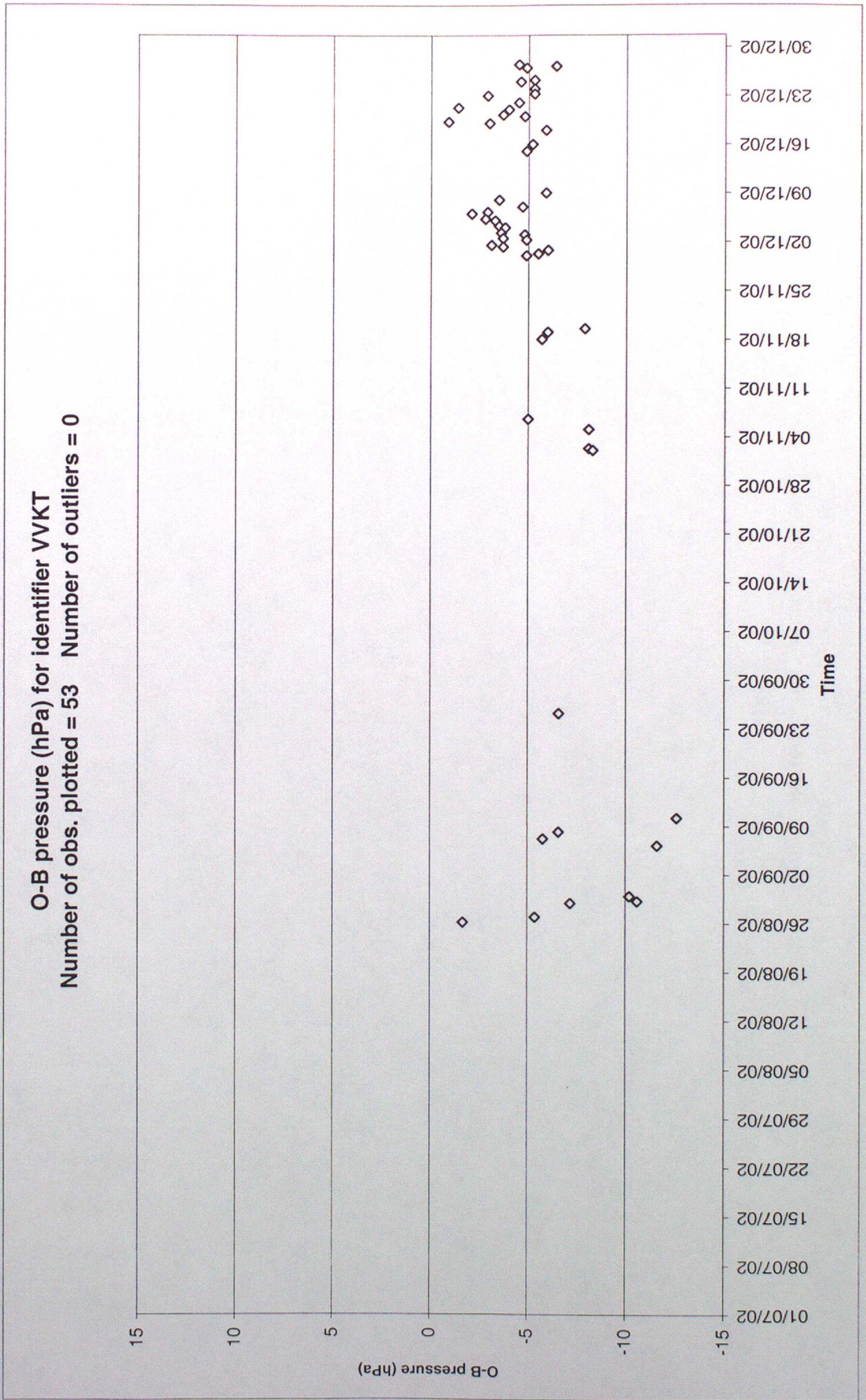


O-B pressure (hPa) for identifier VRUR
Number of obs. plotted = 119   Number of outliers = 0



O-B pressure (hPa) for identifier VTXG

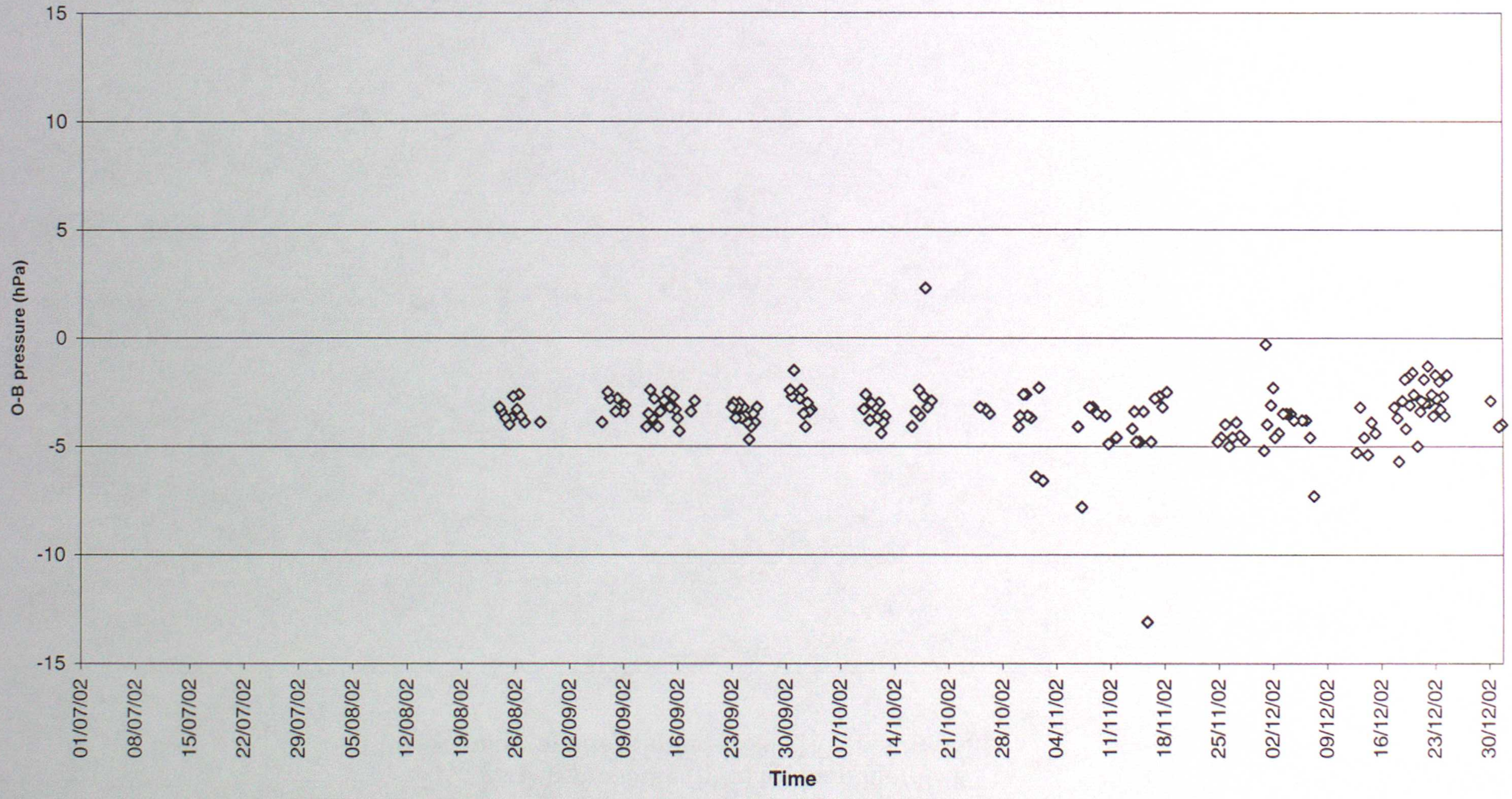
Number of obs. plotted = 220   Number of outliers = 1



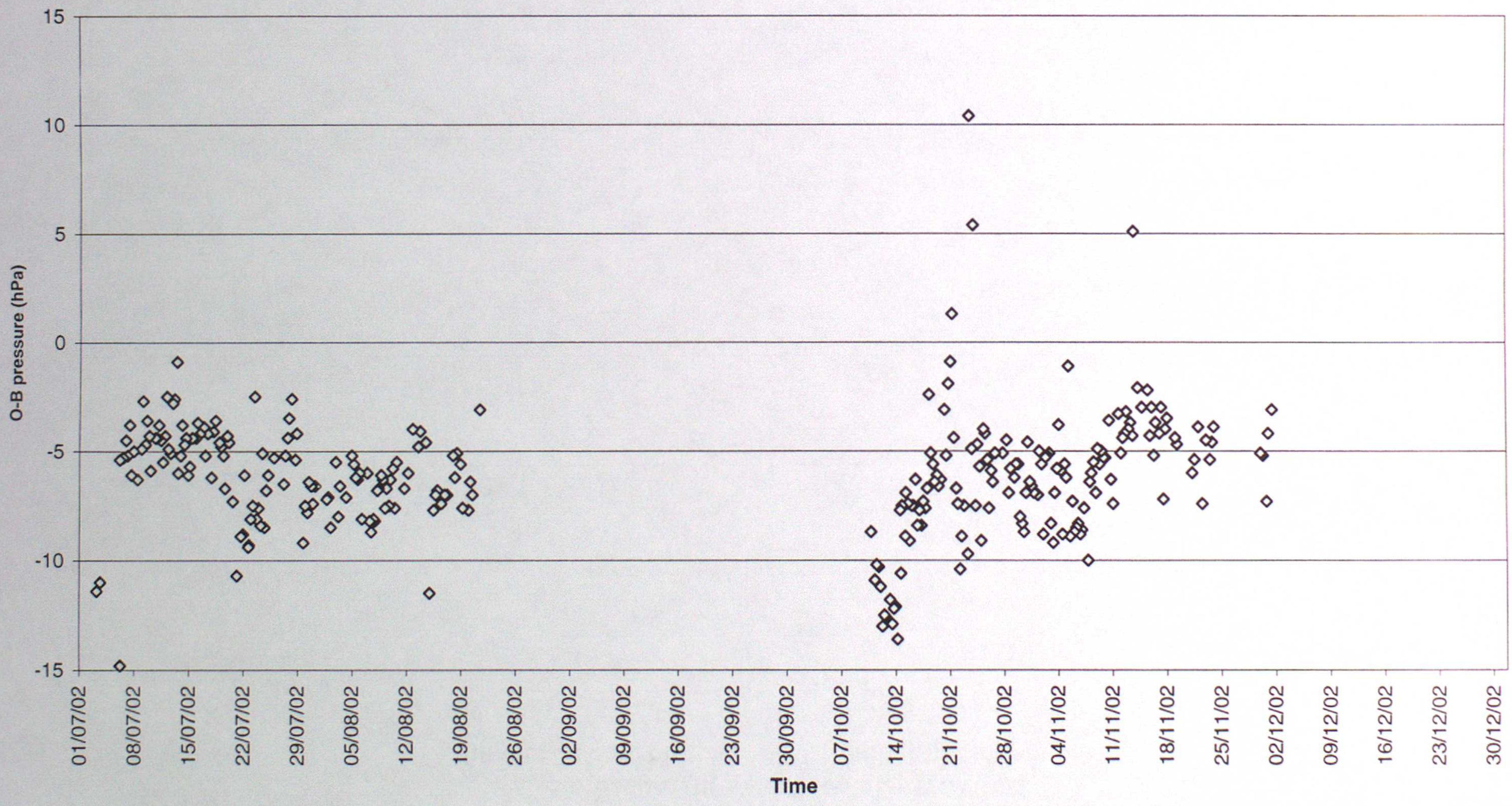
O-B pressure (hPa) for identifier VVKT

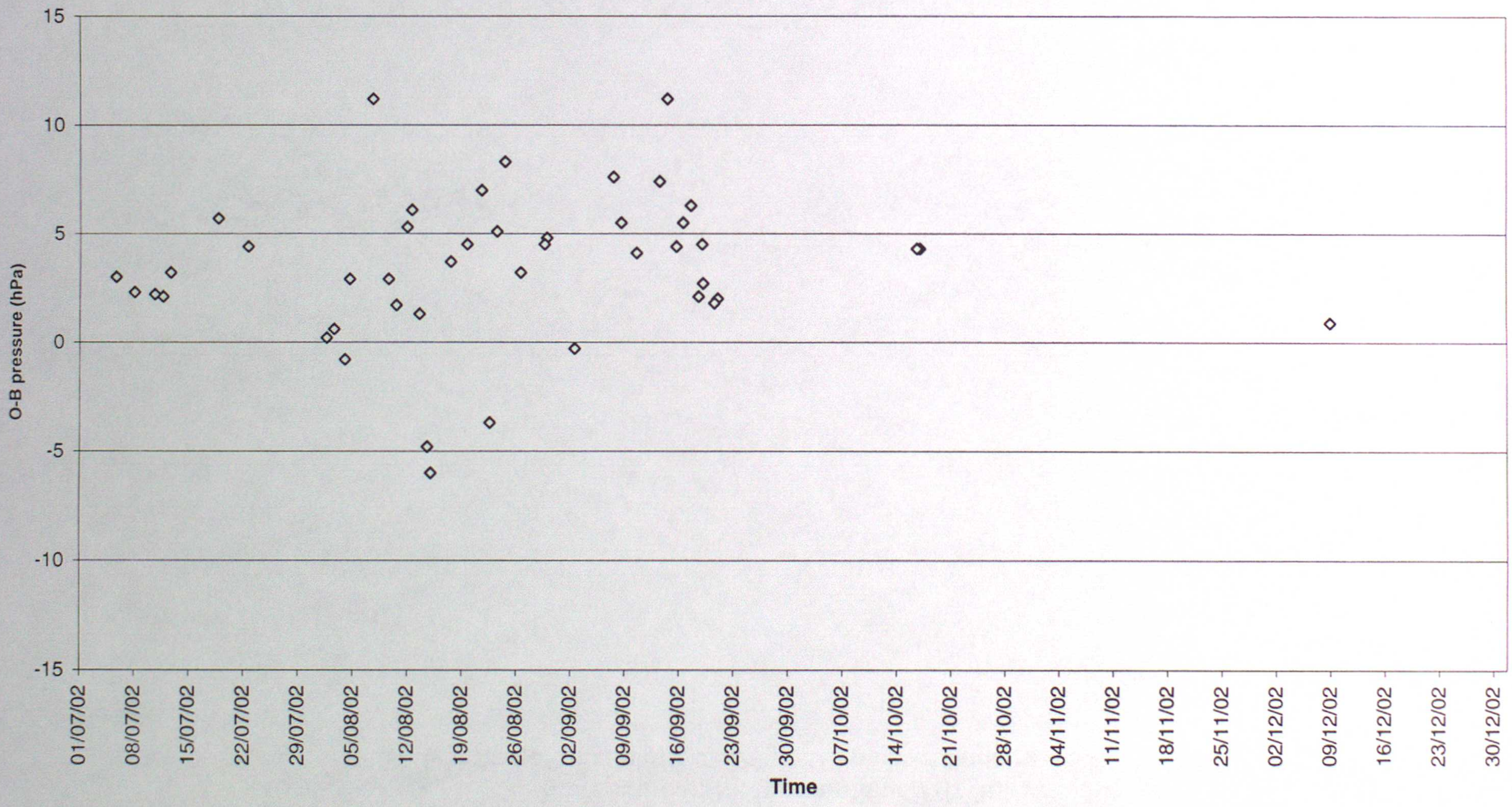
Number of obs. plotted = 53   Number of outliers = 0

O-B pressure (hPa) for identifier V7BX2
Number of obs. plotted = 168   Number of outliers = 1



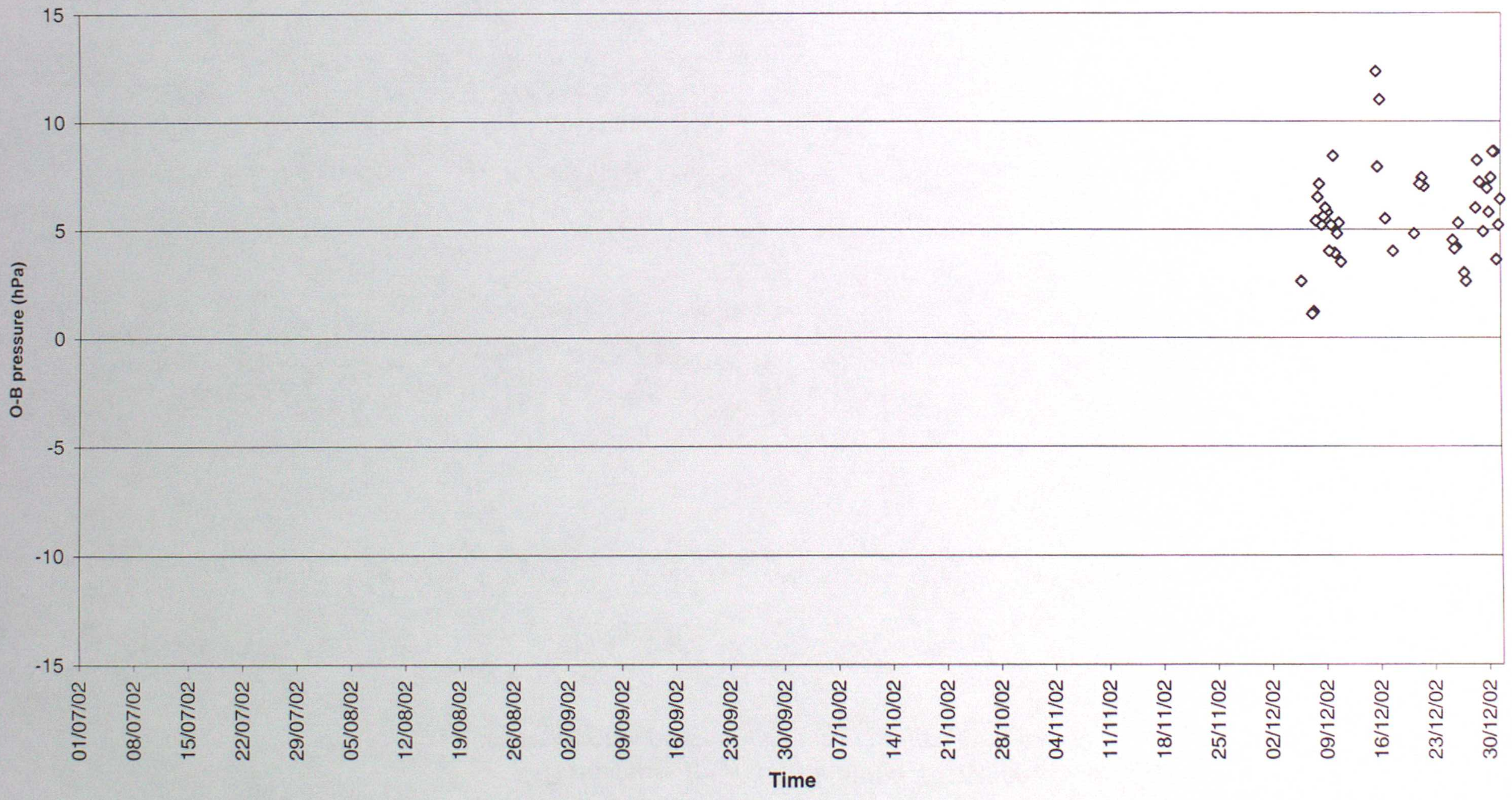
O-B pressure (hPa) for identifier V7CY9
Number of obs. plotted = 286   Number of outliers = 3

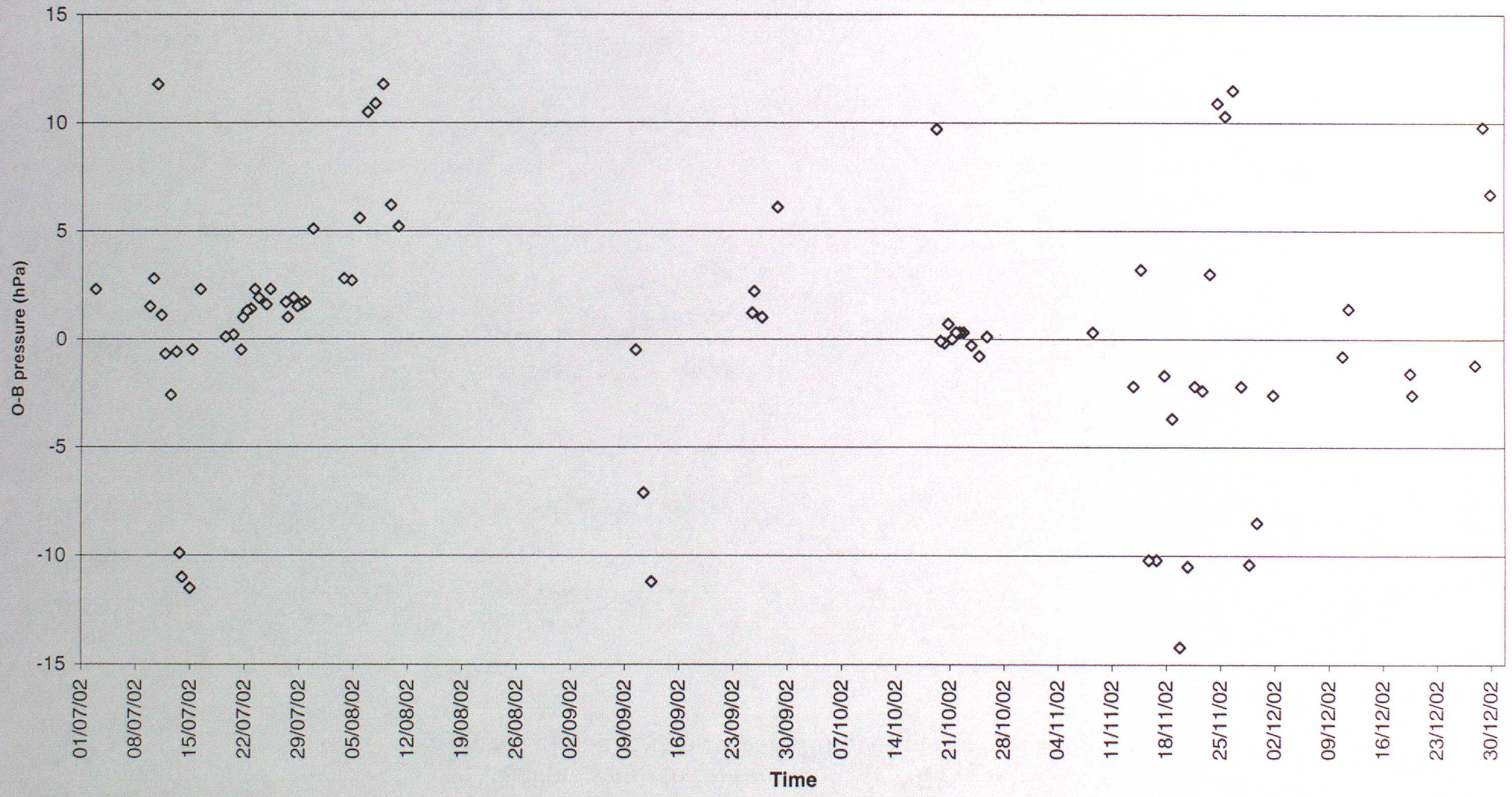




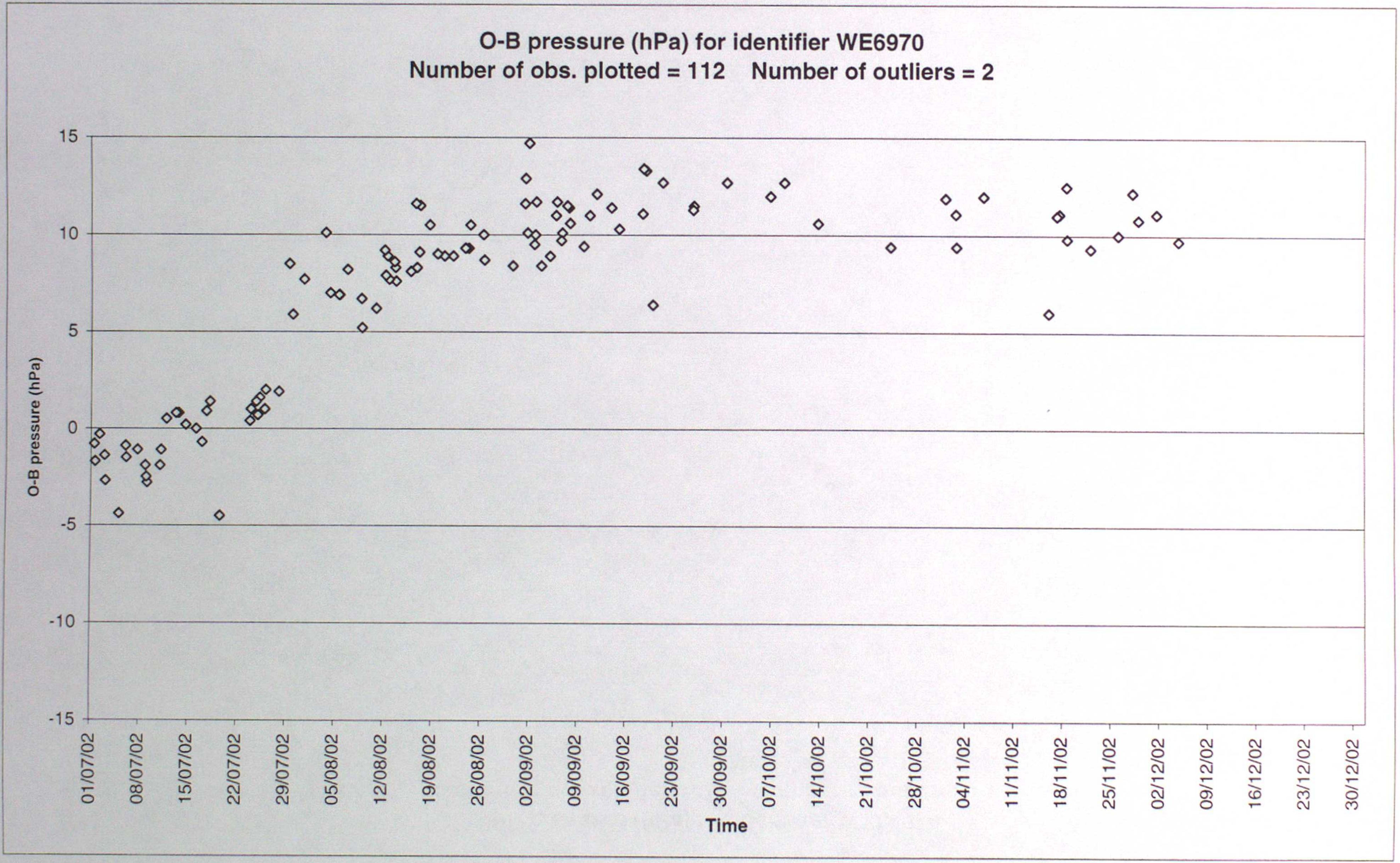
O-B pressure (hPa) for identifier WCY3172
Number of obs. plotted = 45   Number of outliers = 0

O-B pressure (hPa) for identifier WCY7054
Number of obs. plotted = 44   Number of outliers = 0

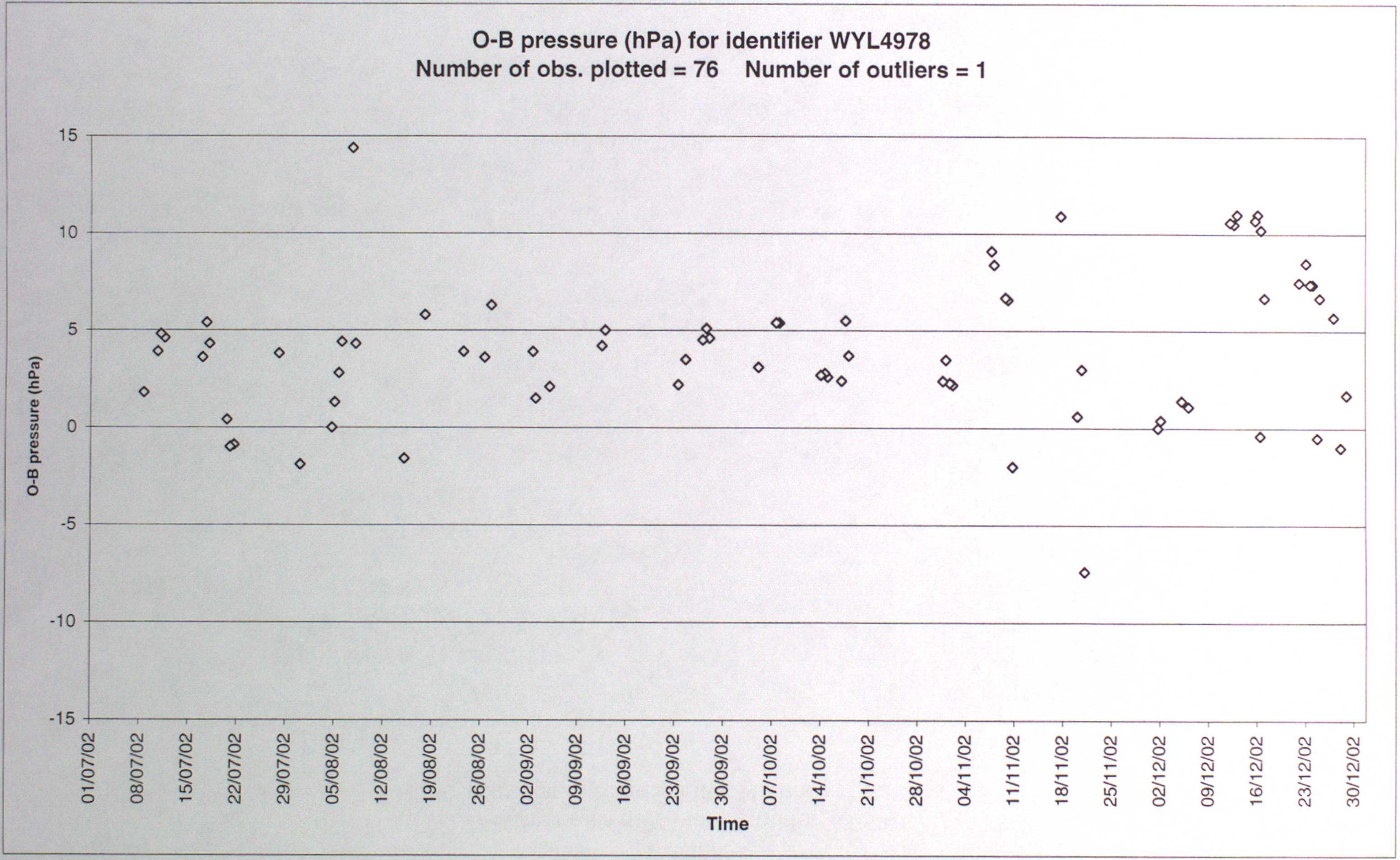




O-B pressure (hPa) for identifier WCZ8589
Number of obs. plotted = 82   Number of outliers = 2

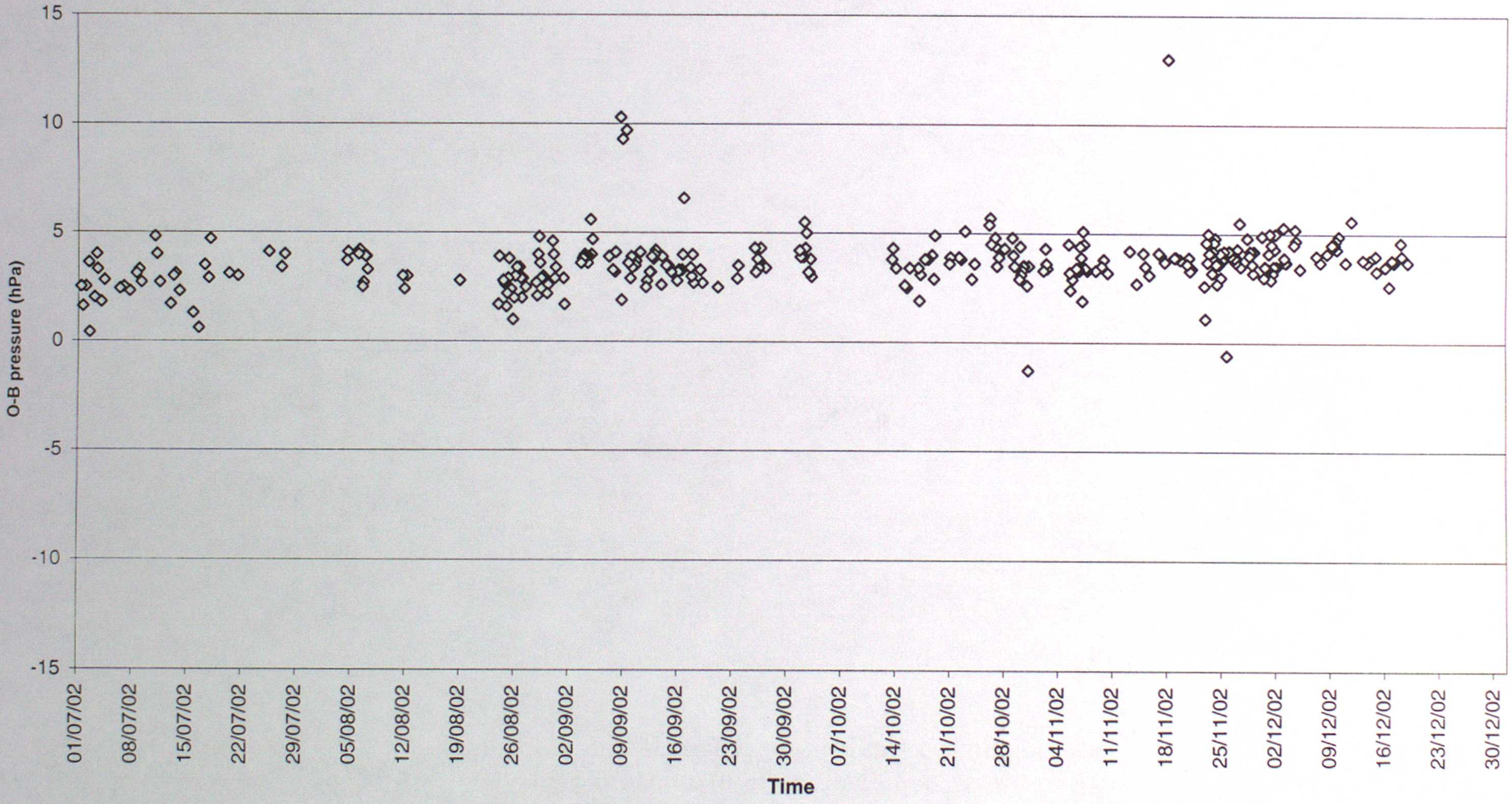


O-B pressure (hPa) for identifier WE6970
Number of obs. plotted = 112   Number of outliers = 2

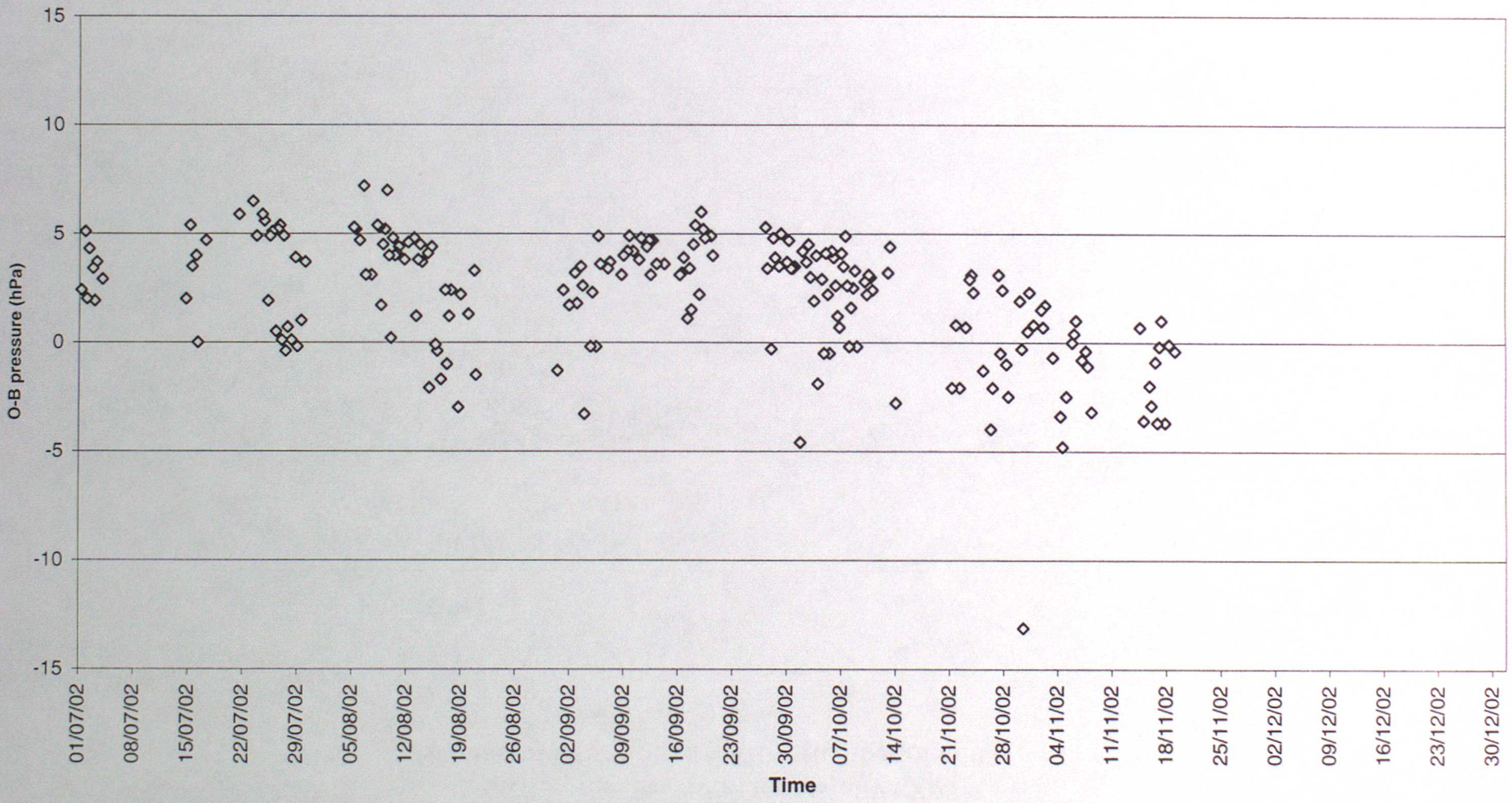

O-B pressure (hPa) for identifier WYL4978

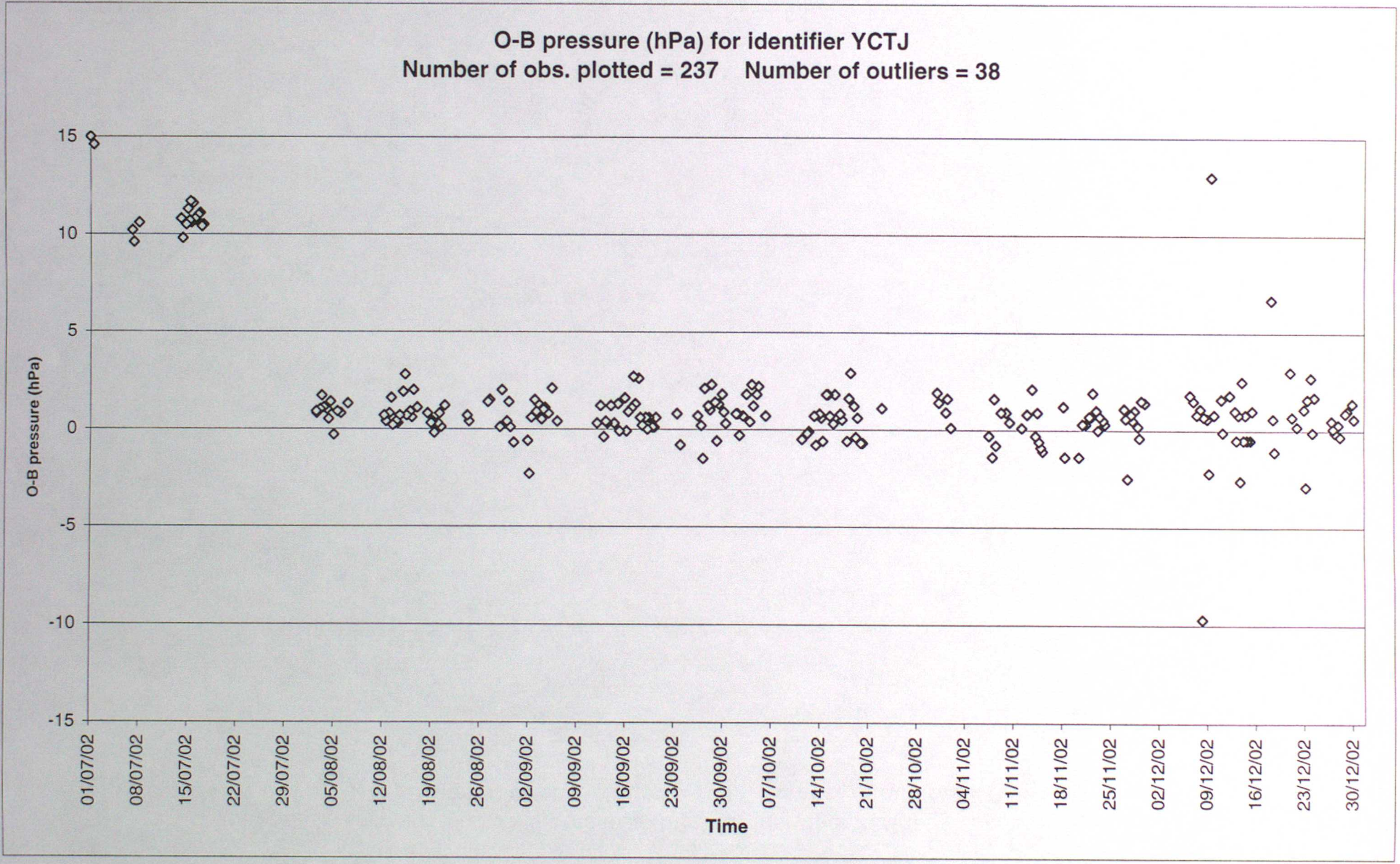
Number of obs. plotted = 76   Number of outliers = 1

O-B pressure (hPa) for identifier XPYM
Number of obs. plotted = 310   Number of outliers = 0



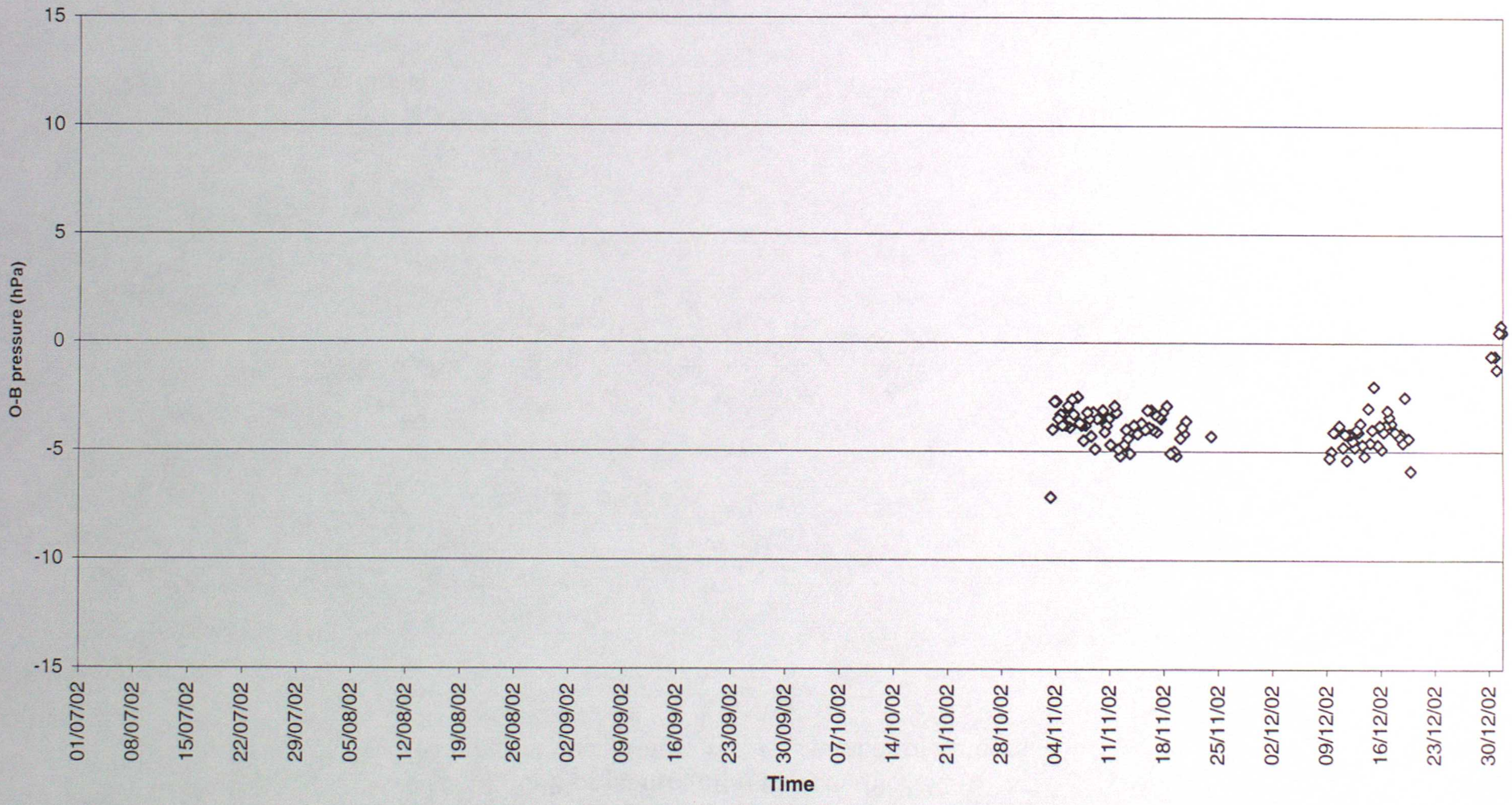
O-B pressure (hPa) for identifier XXAN
Number of obs. plotted = 209   Number of outliers = 0



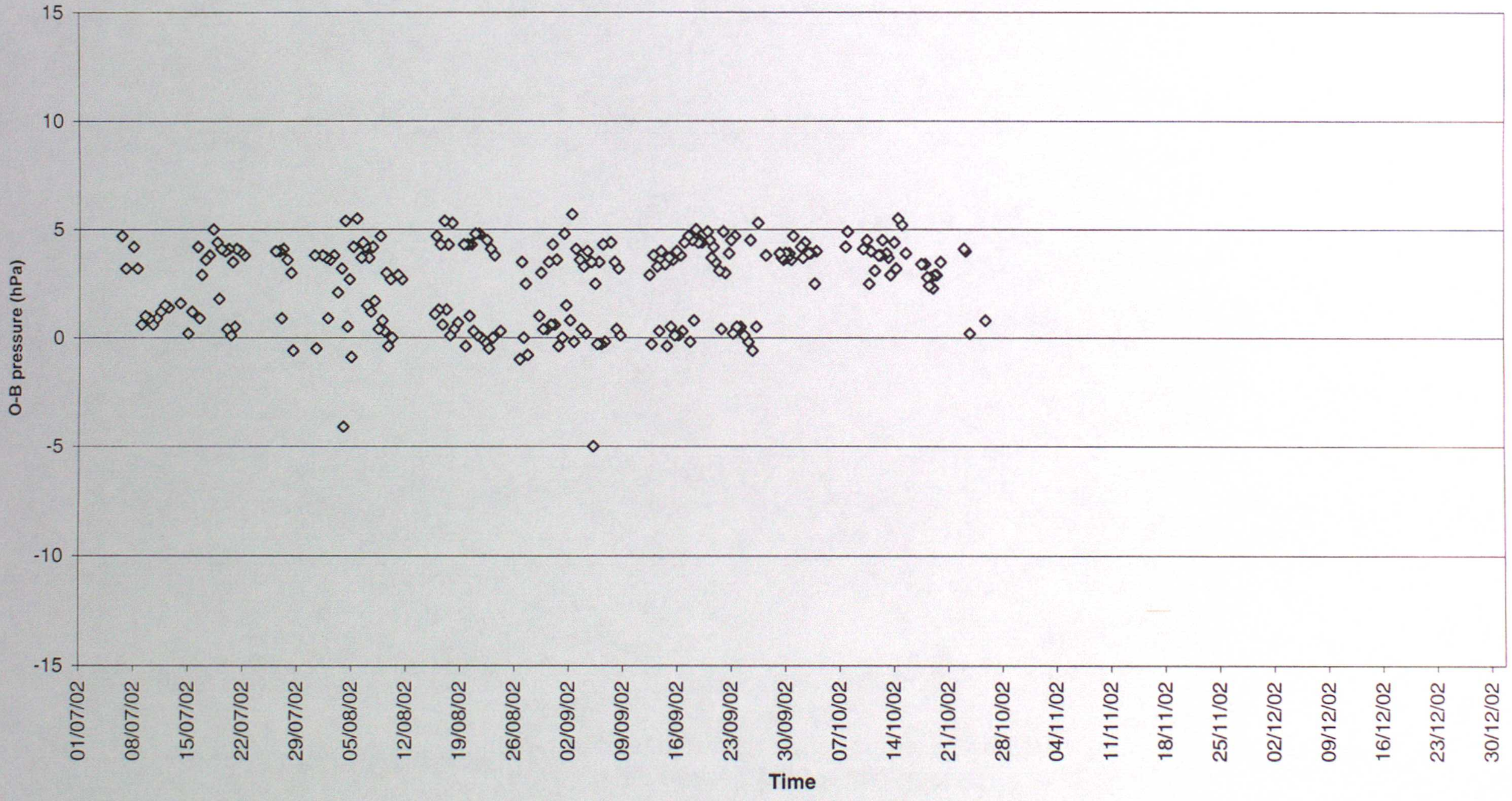


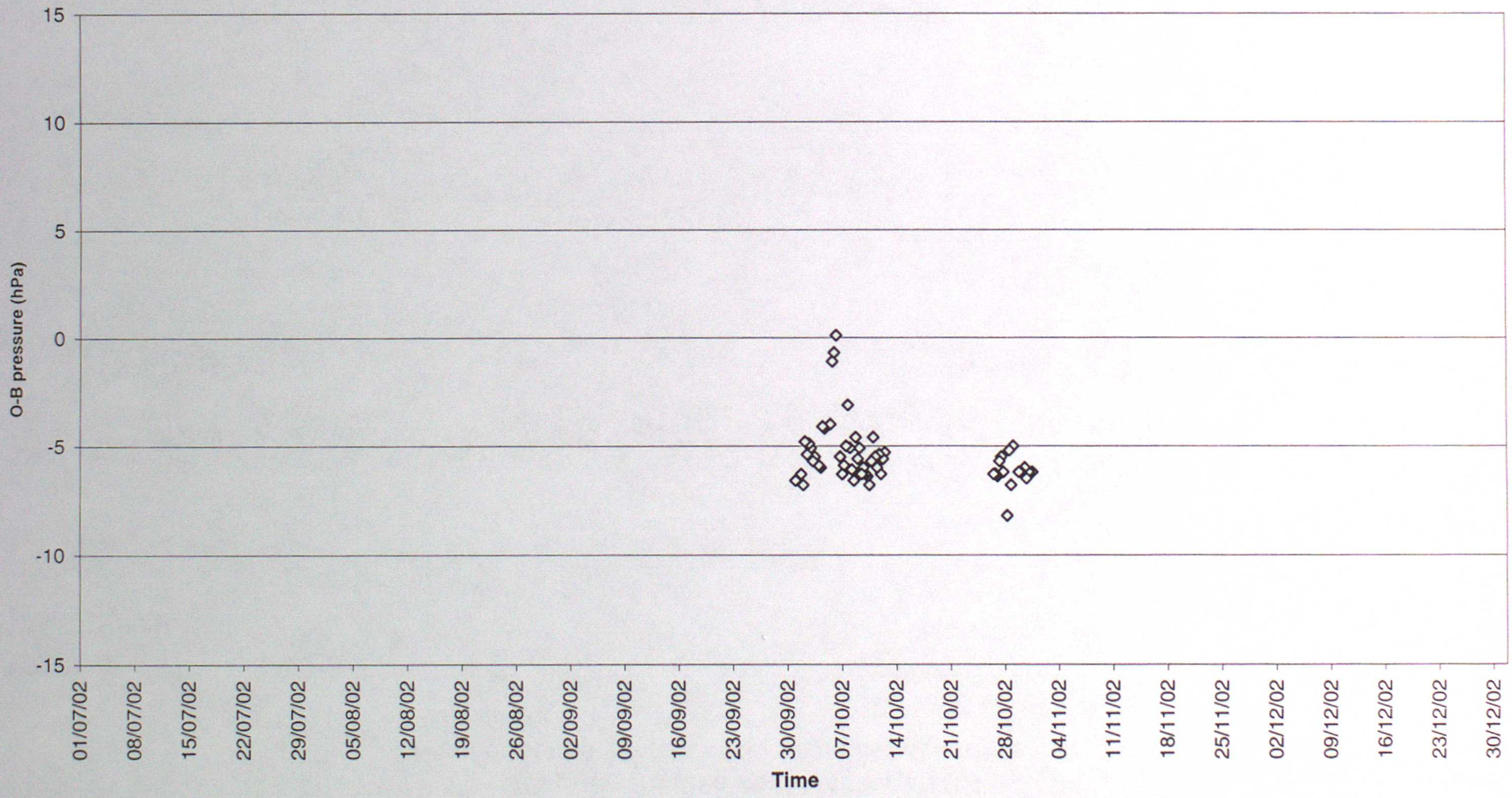
O-B pressure (hPa) for identifier YCTJ
Number of obs. plotted = 237   Number of outliers = 38

O-B pressure (hPa) for identifier ZIZP9
Number of obs. plotted = 104   Number of outliers = 0

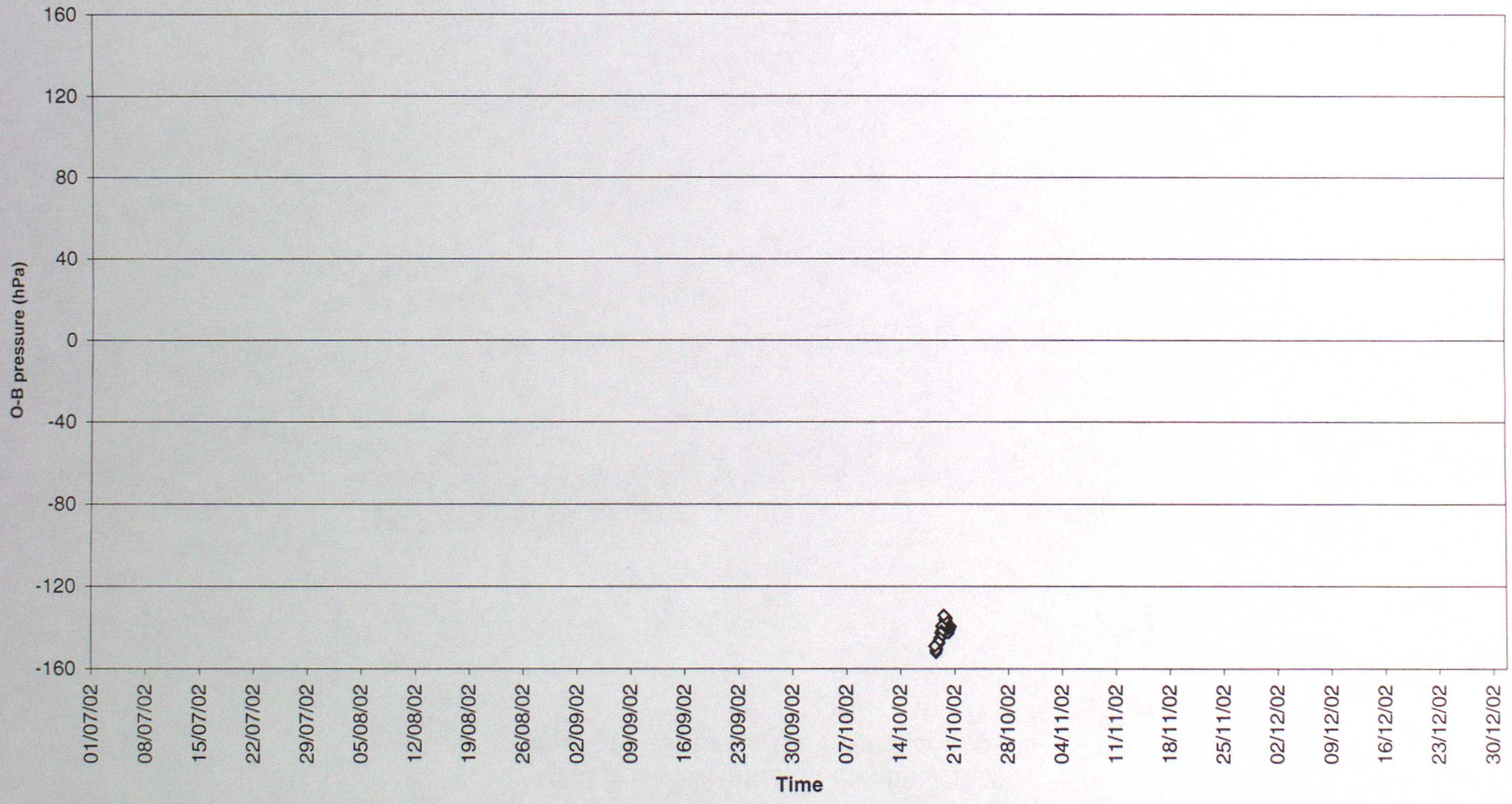


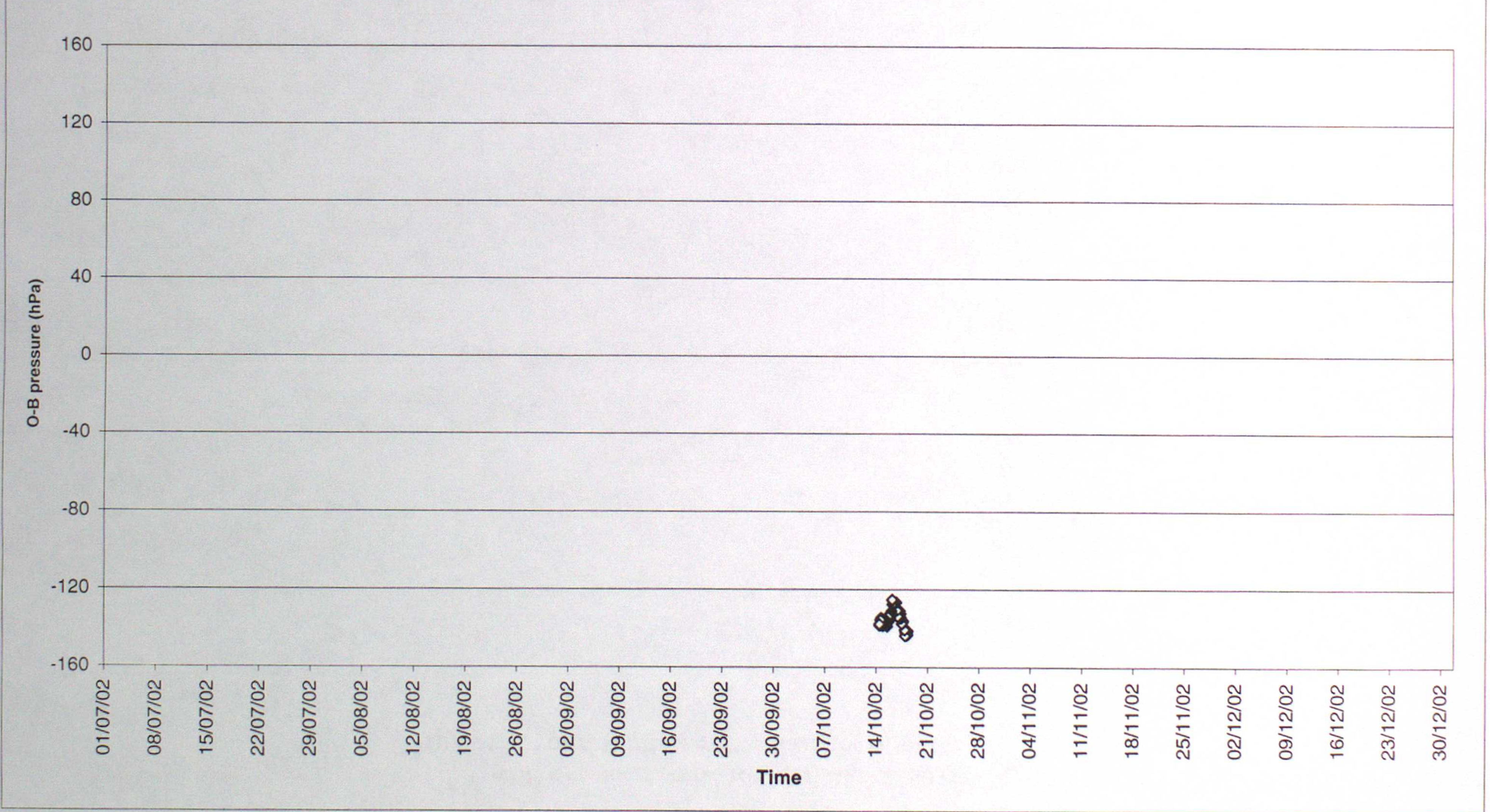
O-B pressure (hPa) for identifier ZNTL4
Number of obs. plotted = 236   Number of outliers = 0



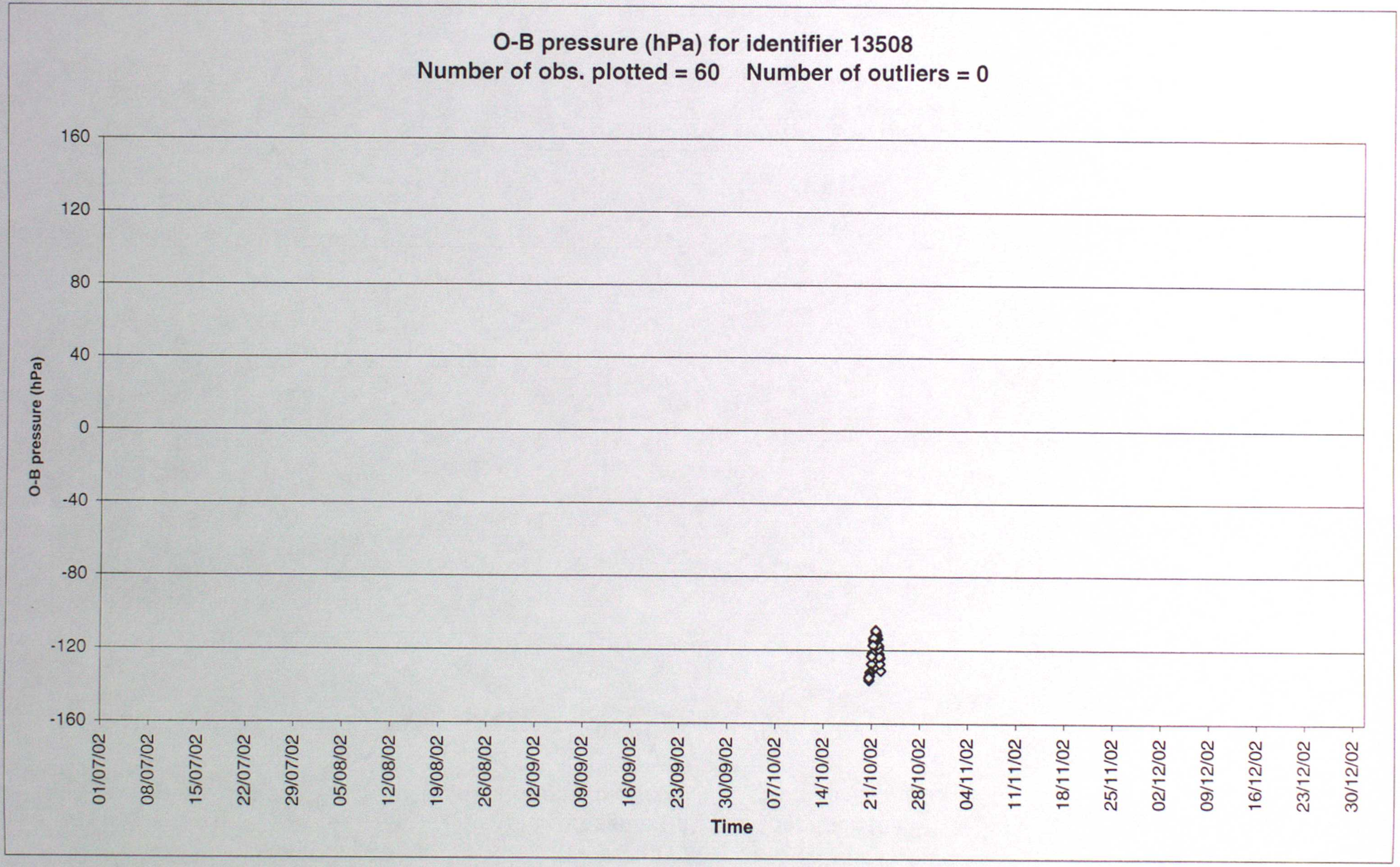


O-B pressure (hPa) for identifier 210
Number of obs. plotted = 57   Number of outliers = 0

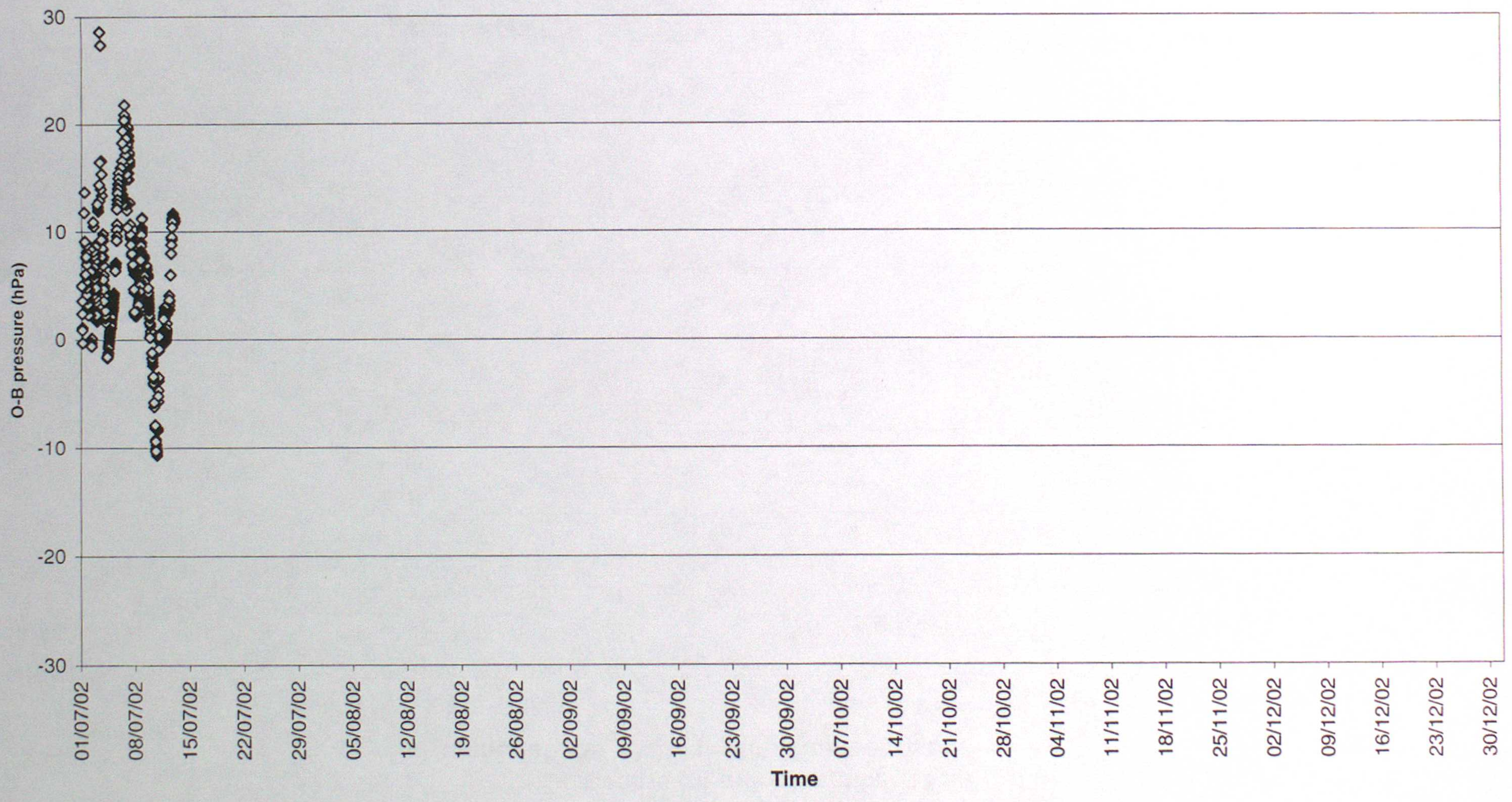

O-B pressure (hPa) for identifier 13501
Number of obs. plotted = 73   Number of outliers = 0



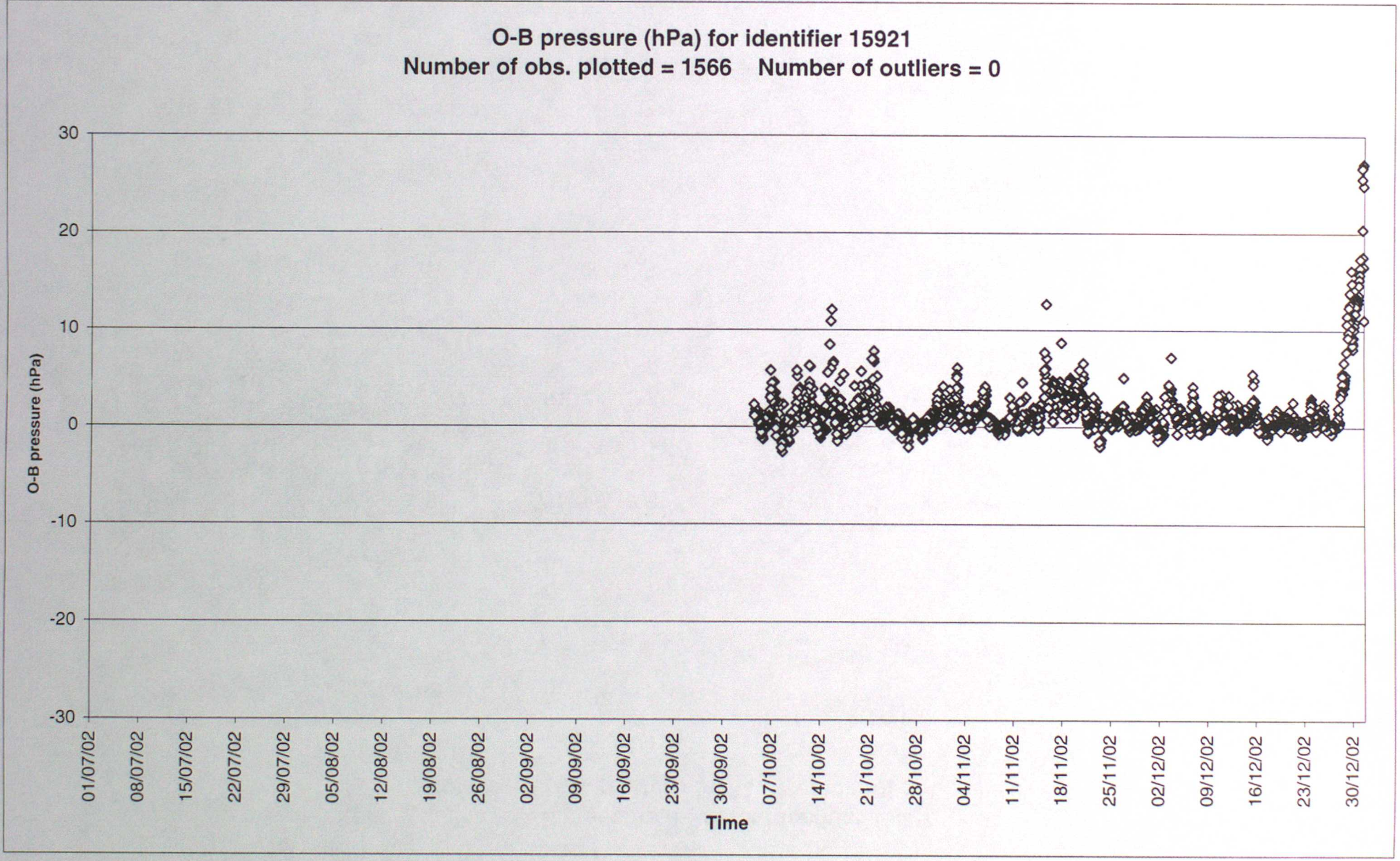
O-B pressure (hPa) for identifier 13504
Number of obs. plotted = 138   Number of outliers = 0

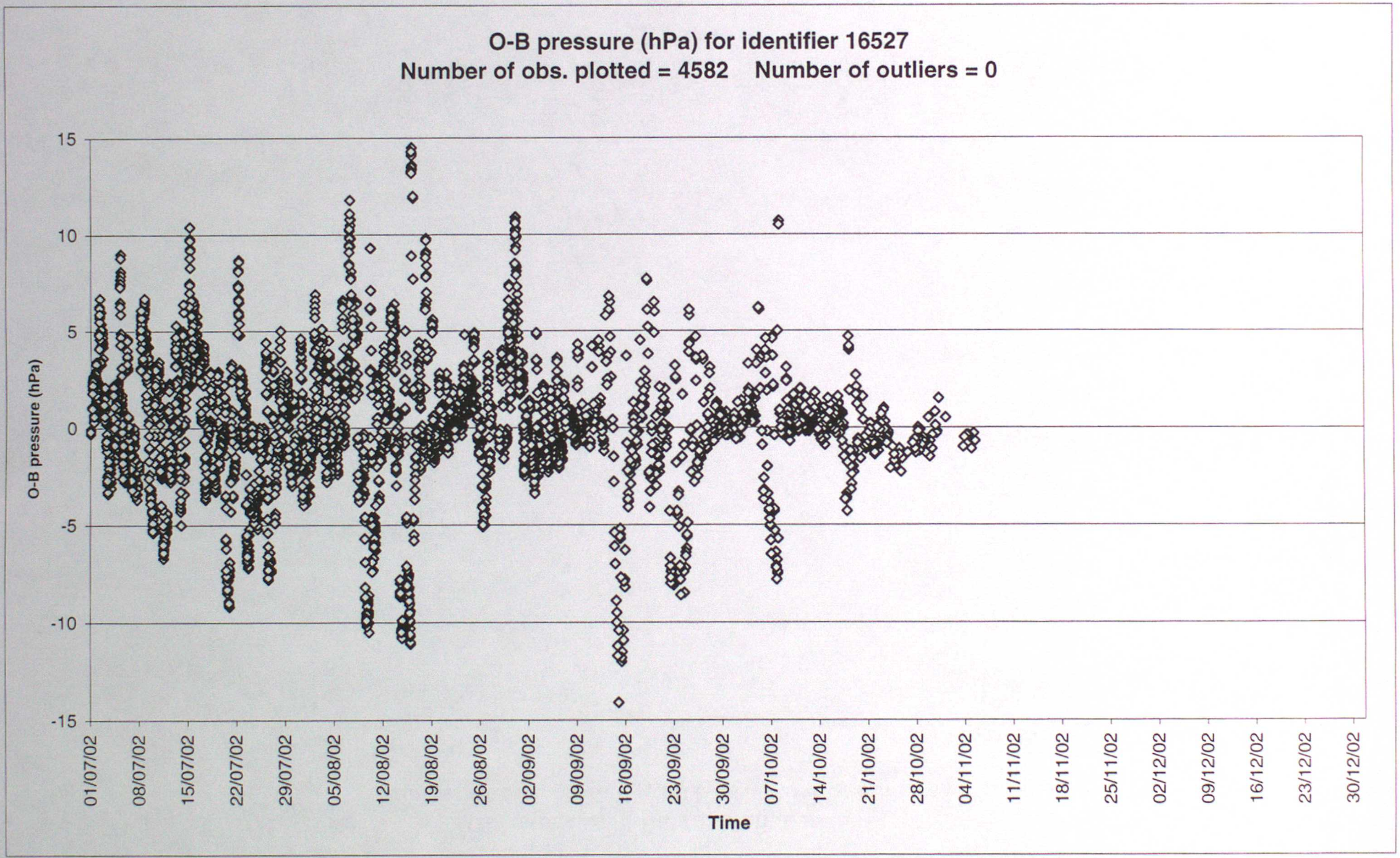


O-B pressure (hPa) for identifier 13508
Number of obs. plotted = 60   Number of outliers = 0



O-B pressure (hPa) for identifier 15910
Number of obs. plotted = 452   Number of outliers = 37

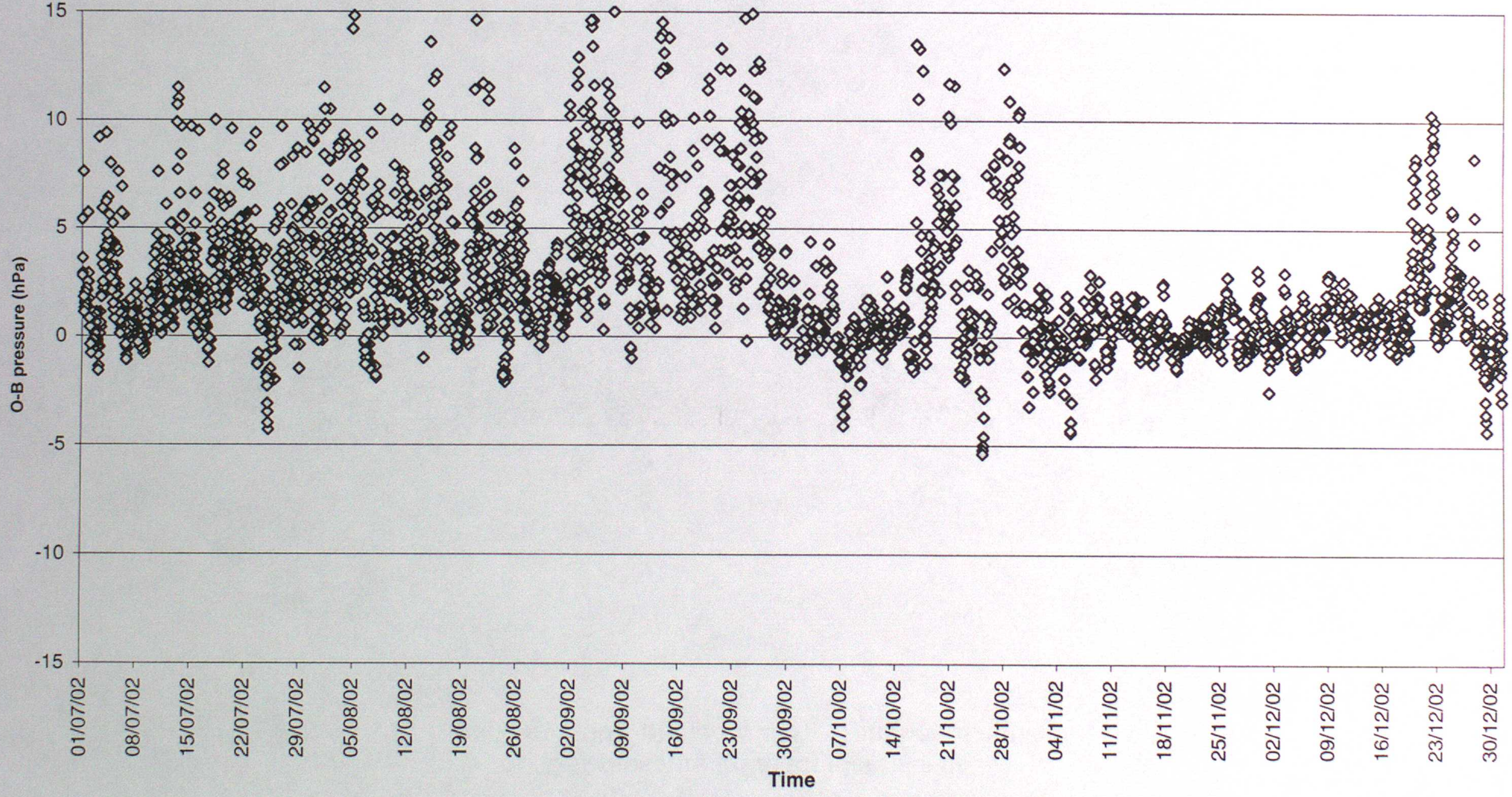

O-B pressure (hPa) for identifier 15921
Number of obs. plotted = 1566   Number of outliers = 0



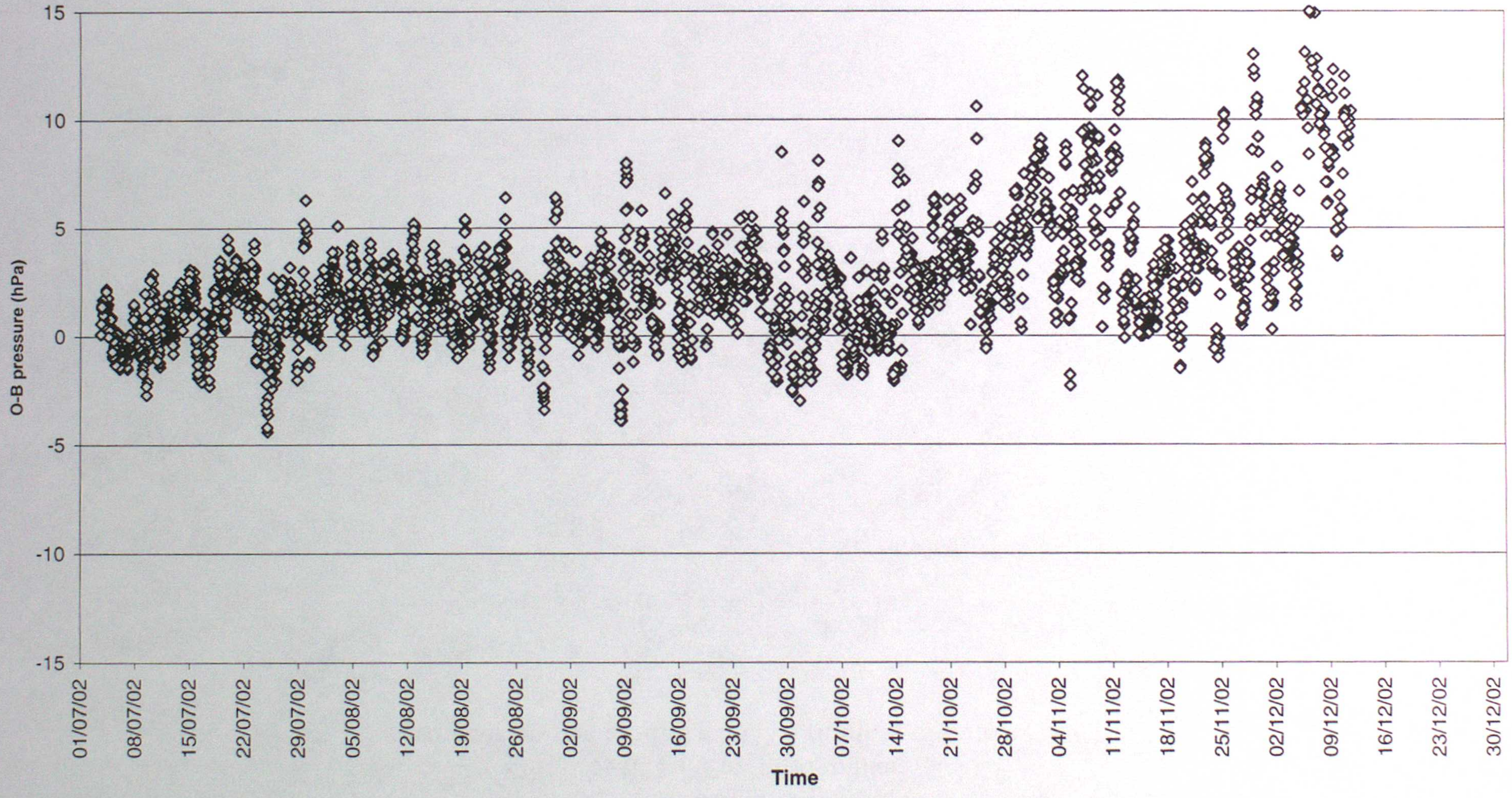
O-B pressure (hPa) for identifier 16527
Number of obs. plotted = 4582   Number of outliers = 0

O-B pressure (hPa) for identifier 16943

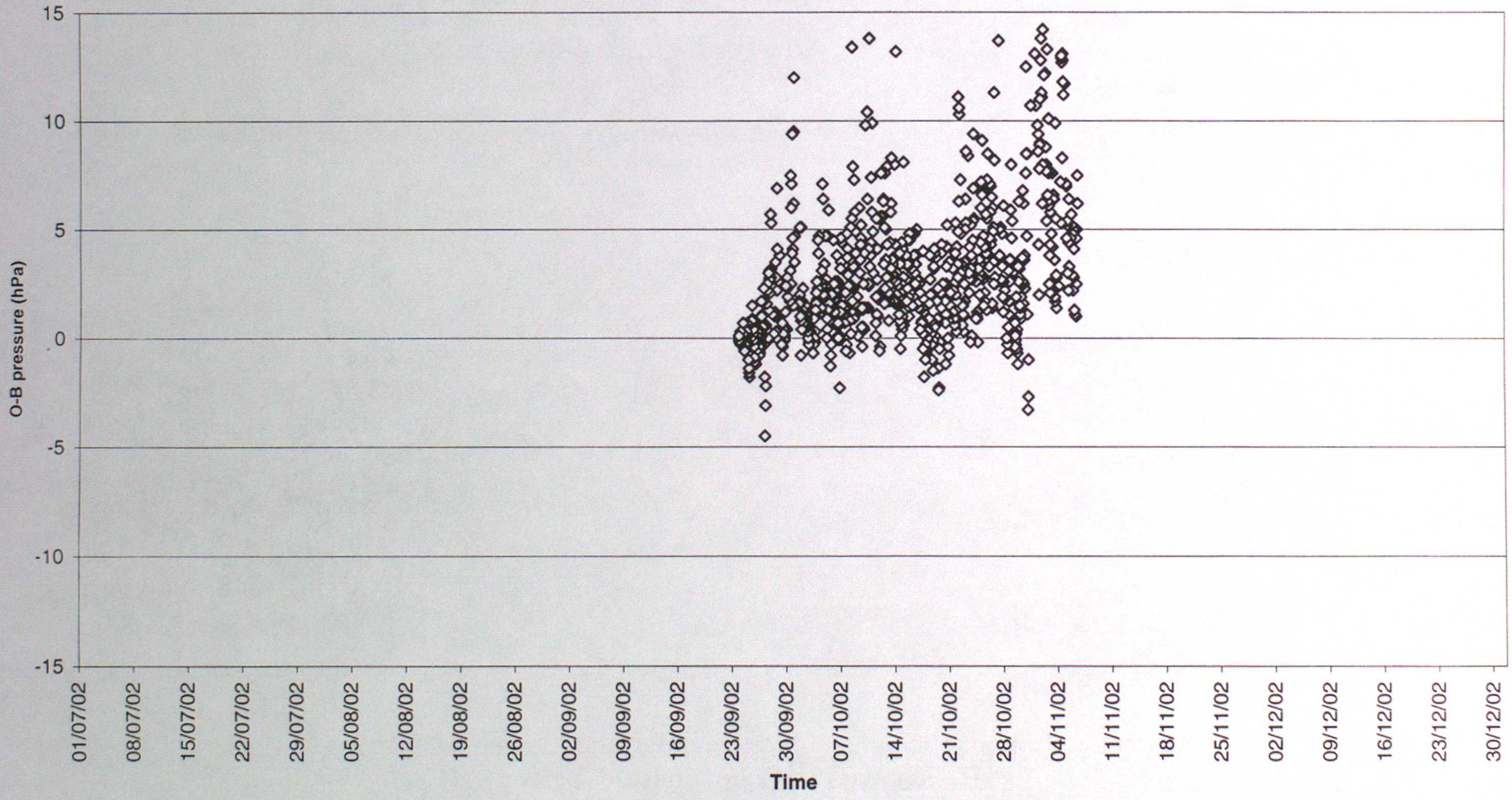
Number of obs. plotted = 3087   Number of outliers = 8

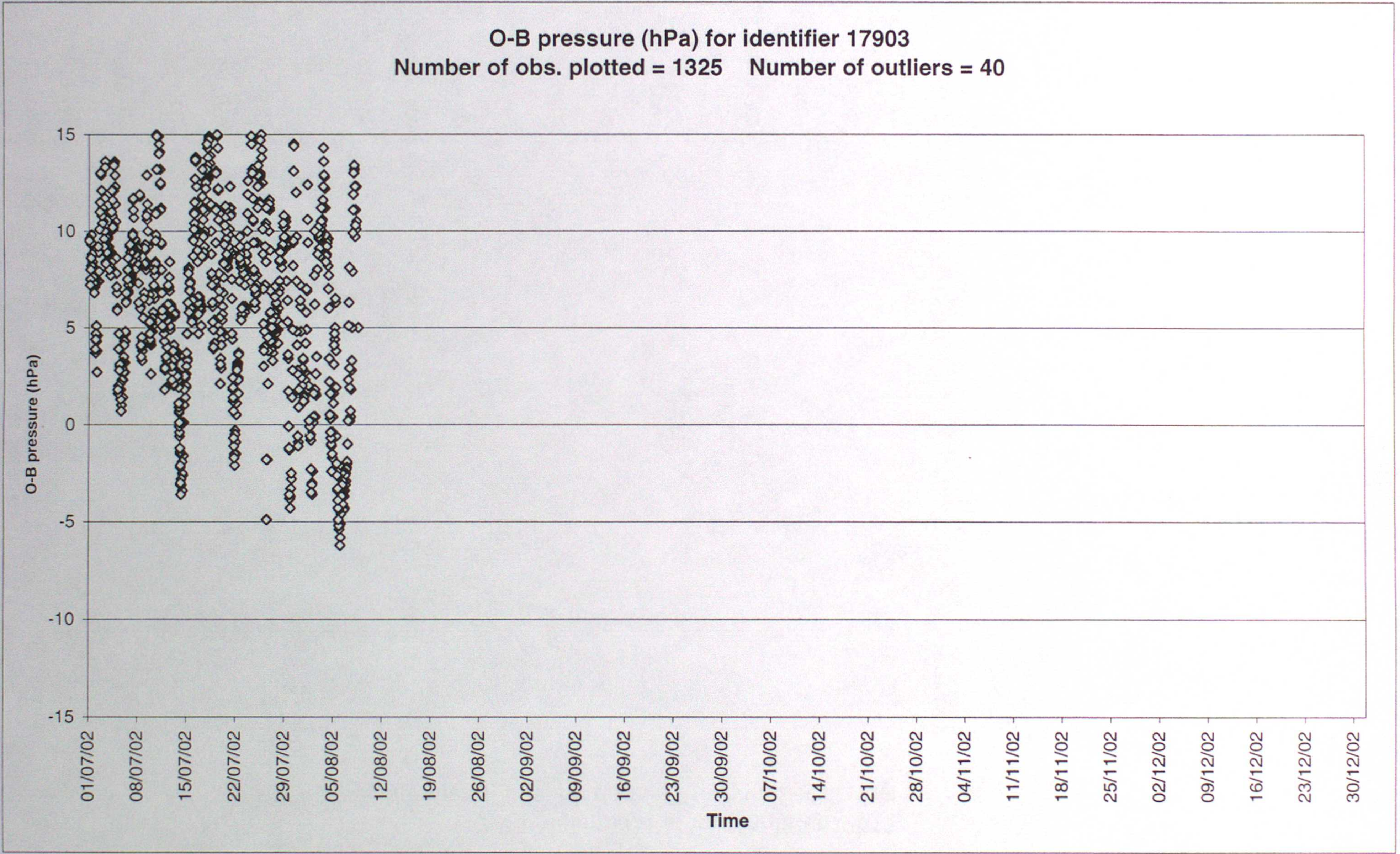


O-B pressure (hPa) for identifier 16951
Number of obs. plotted = 2861   Number of outliers = 4

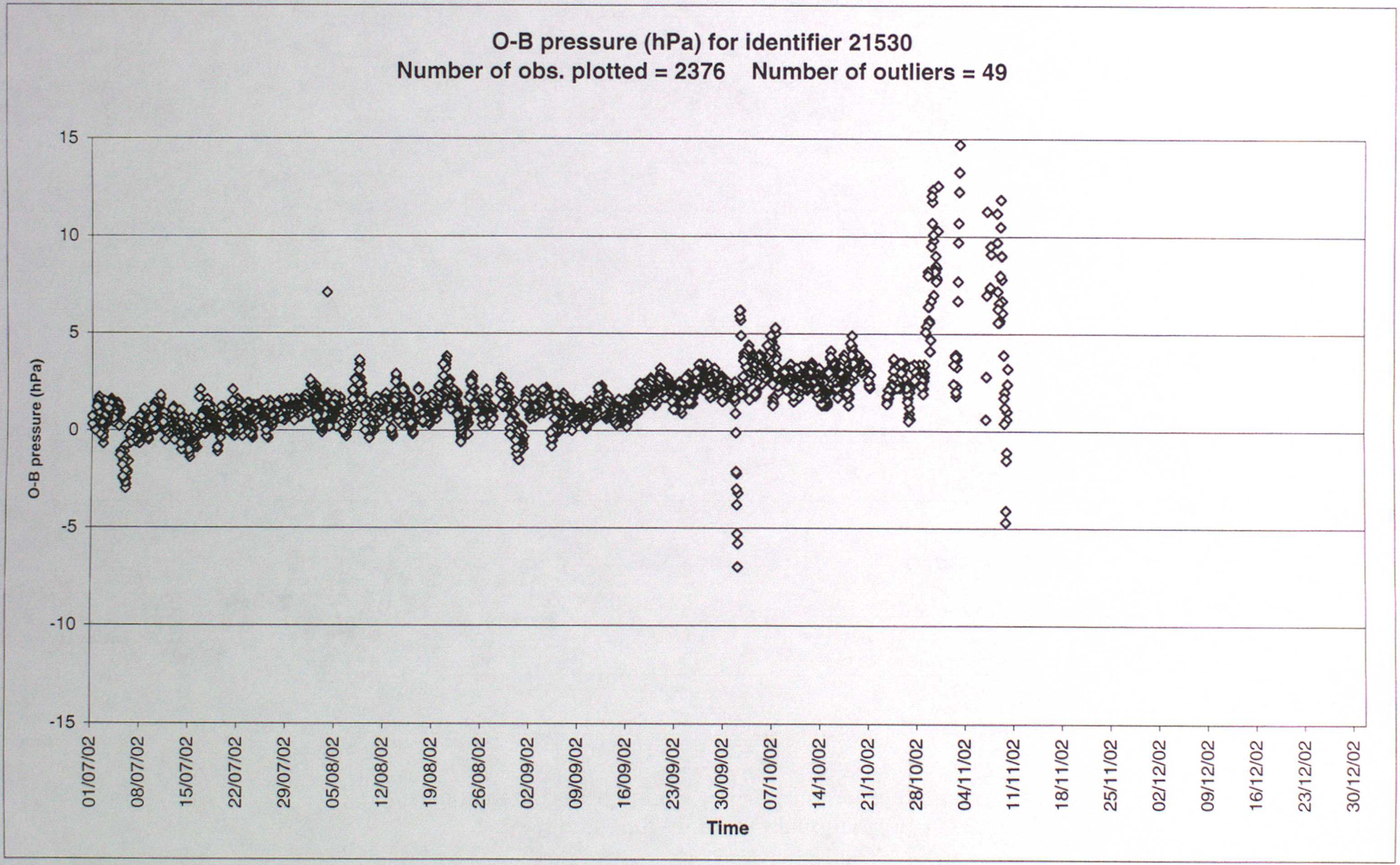


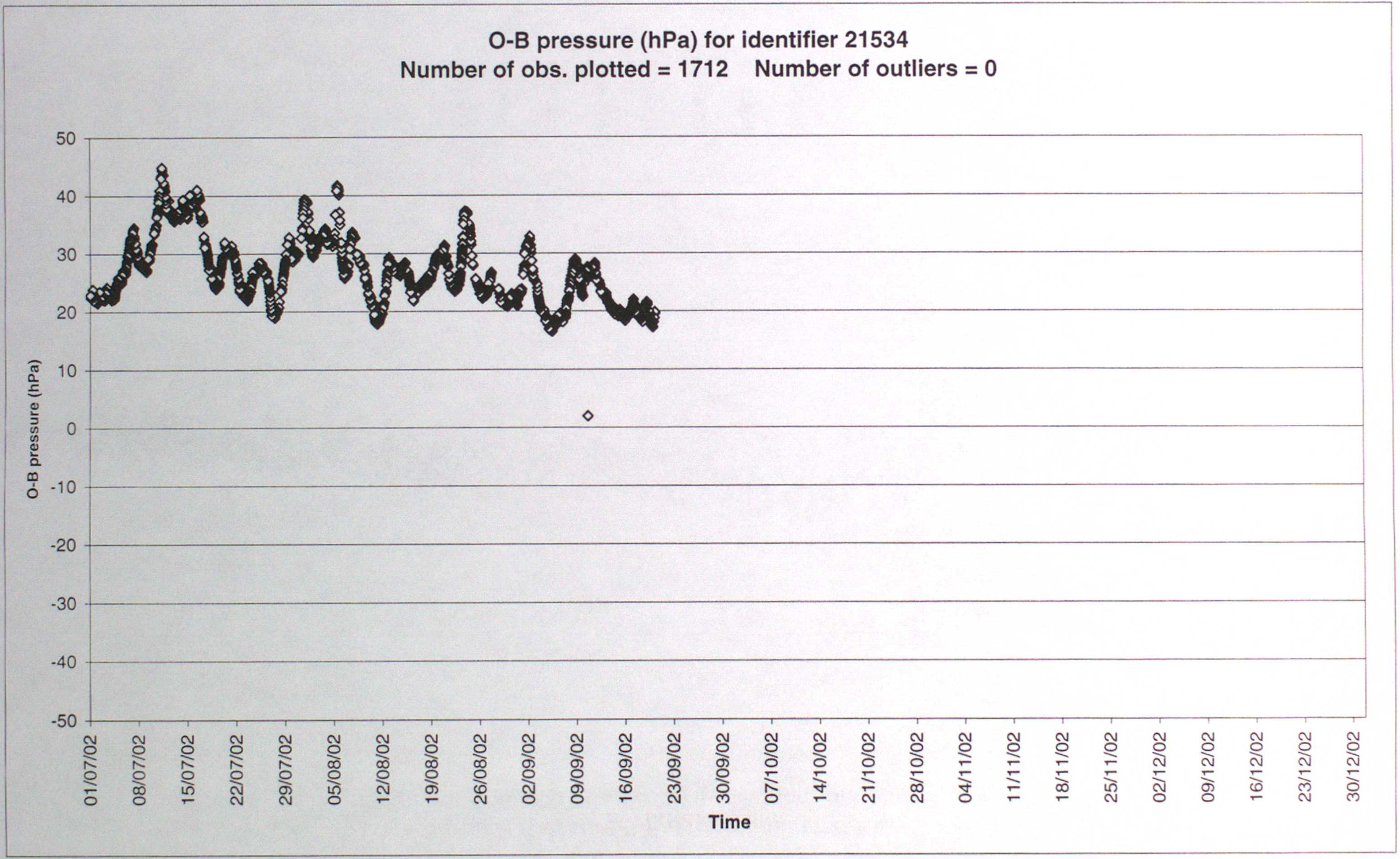
O-B pressure (hPa) for identifier 17515
Number of obs. plotted = 771   Number of outliers = 23

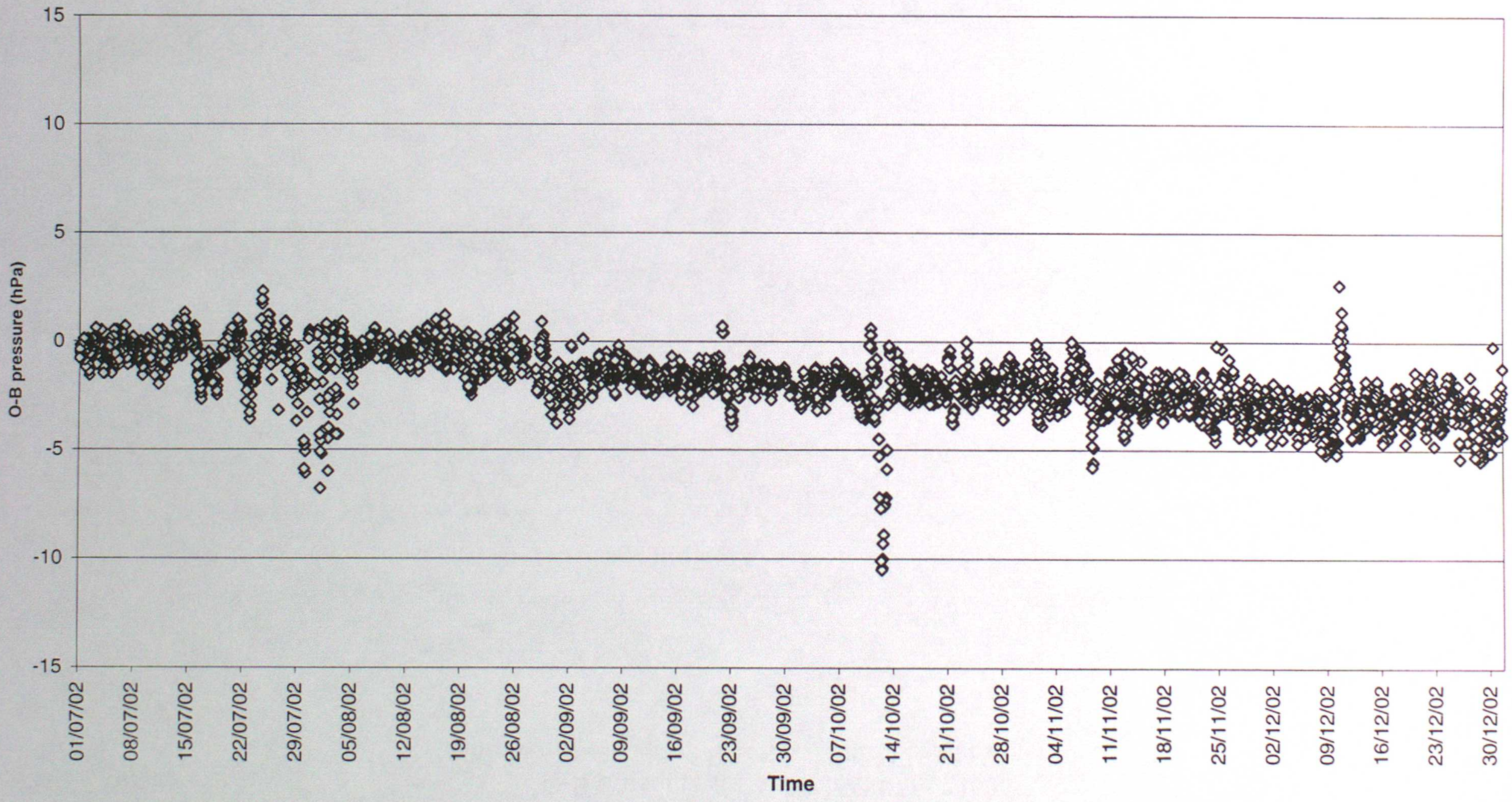




O-B pressure (hPa) for identifier 17903
Number of obs. plotted = 1325   Number of outliers = 40


O-B pressure (hPa) for identifier 21530
Number of obs. plotted = 2376   Number of outliers = 49

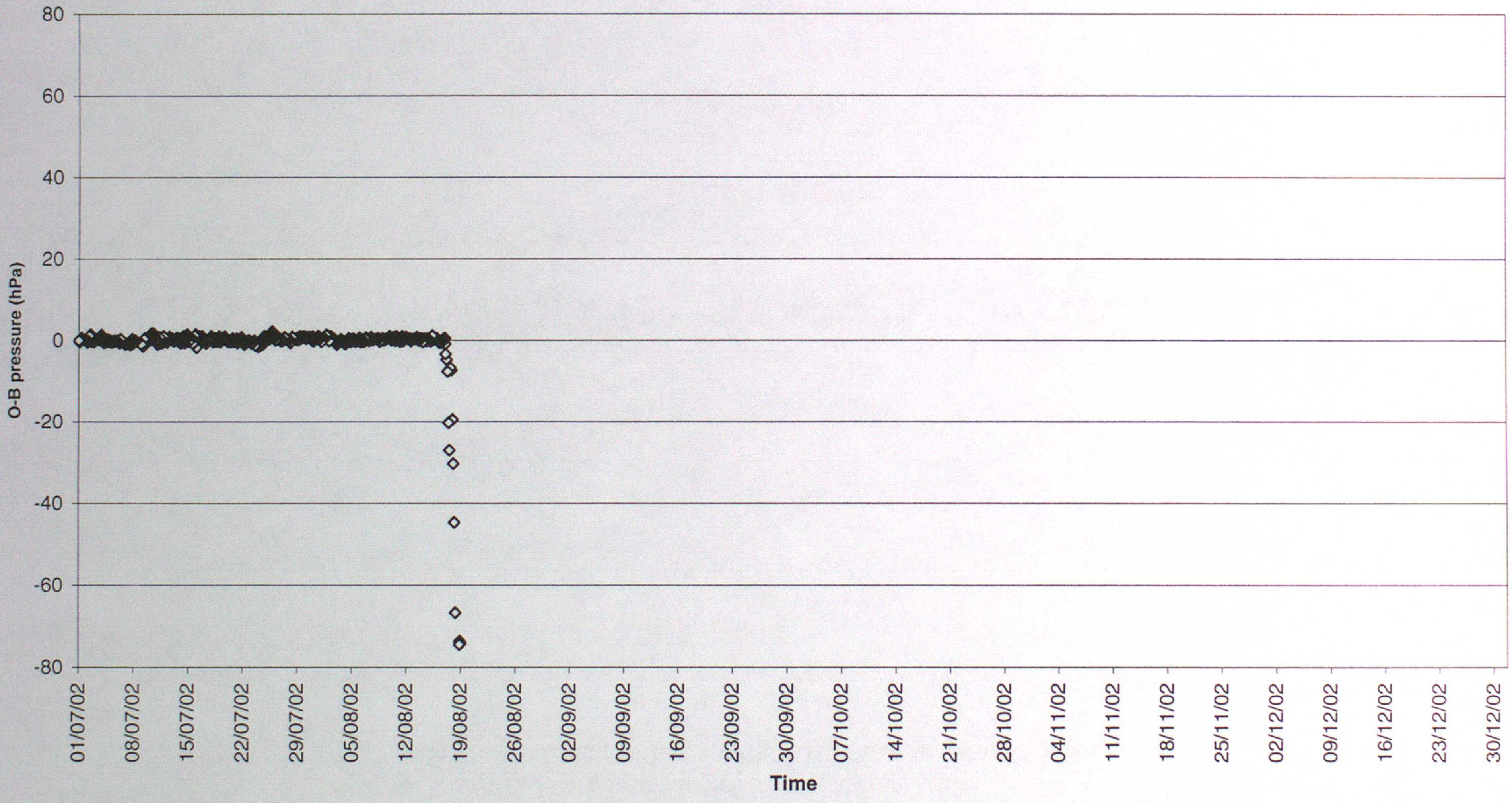

O-B pressure (hPa) for identifier 21534
Number of obs. plotted = 1712   Number of outliers = 0

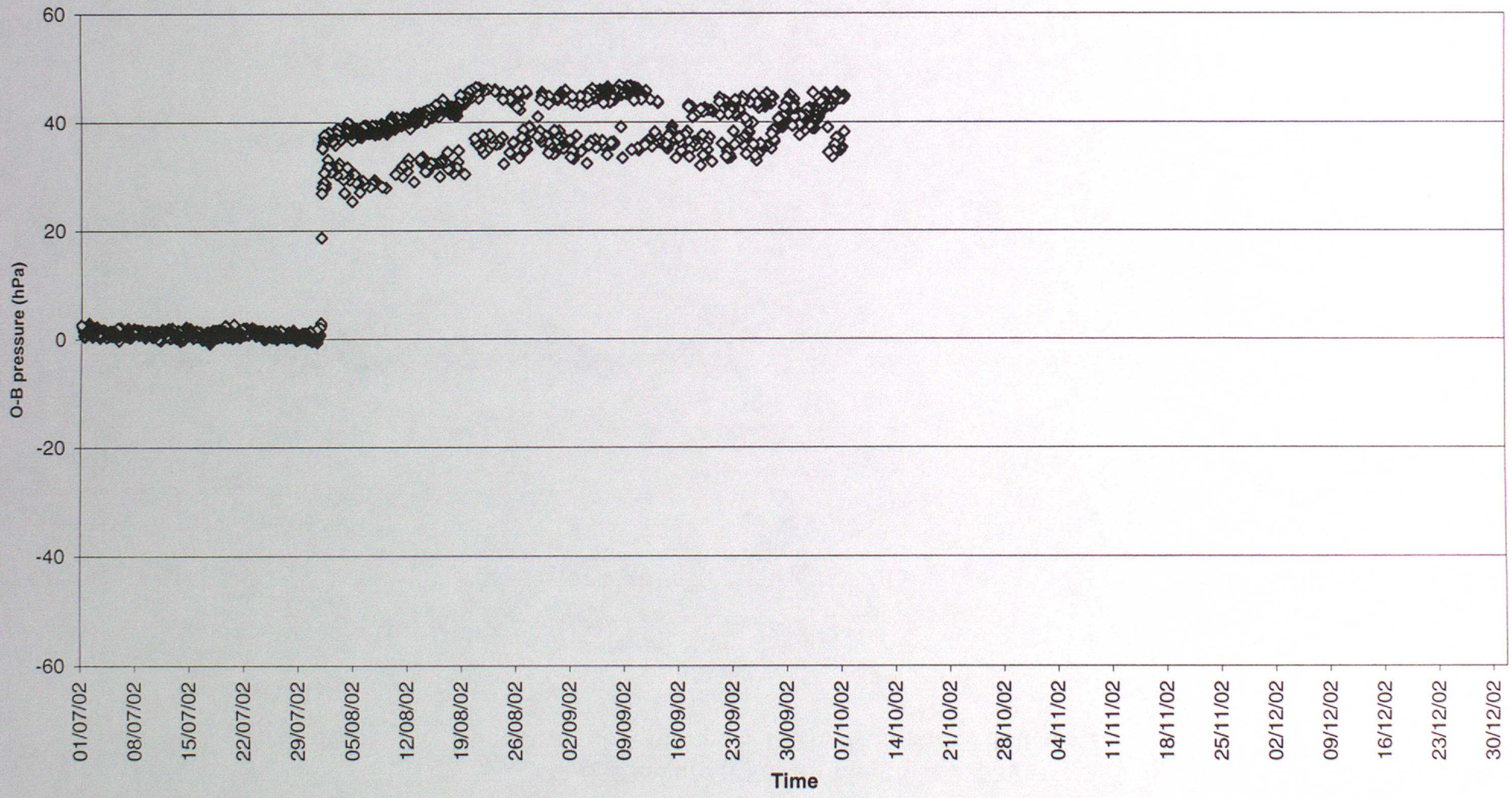


O-B pressure (hPa) for identifier 21535

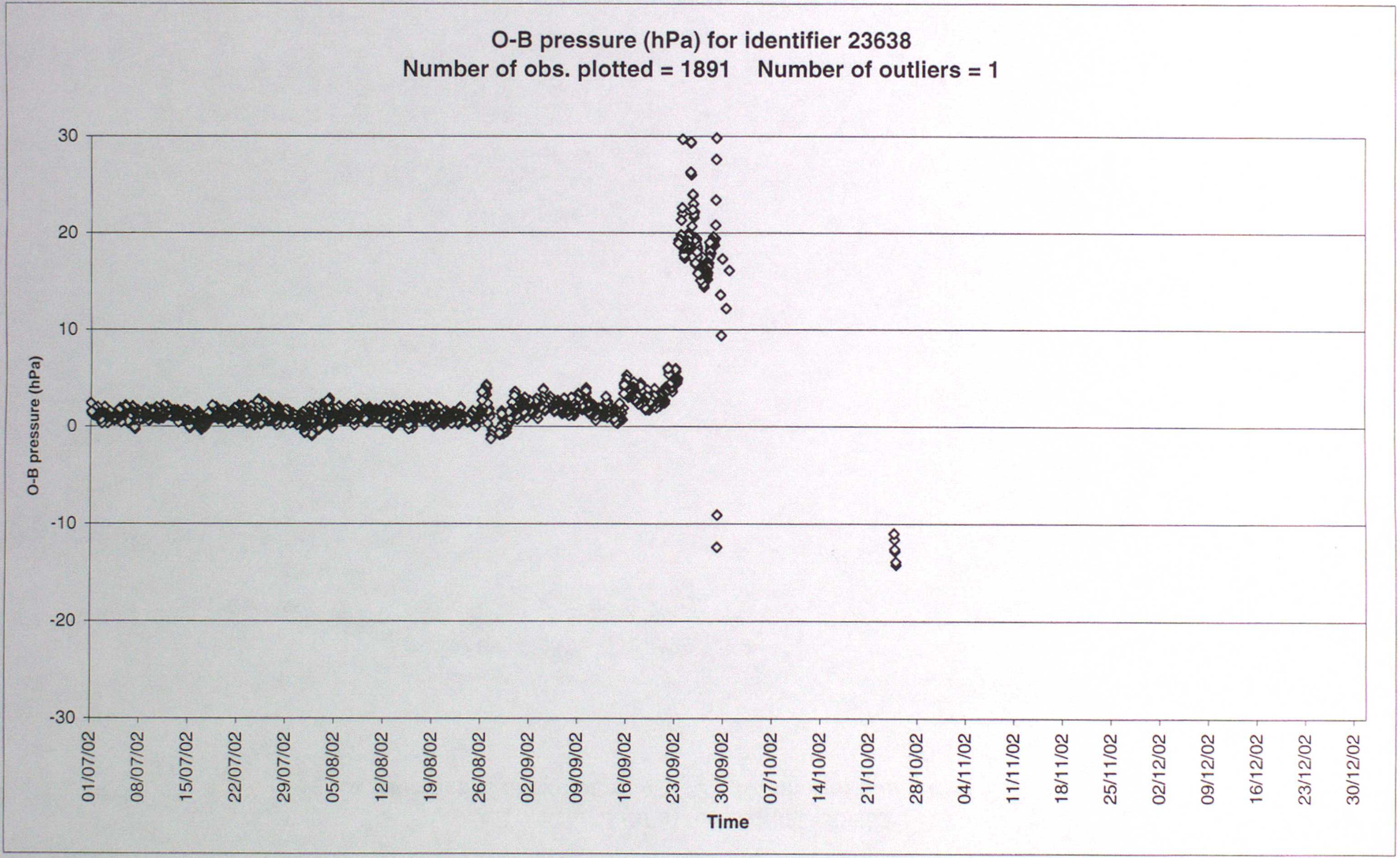
Number of obs. plotted = 3289   Number of outliers = 0

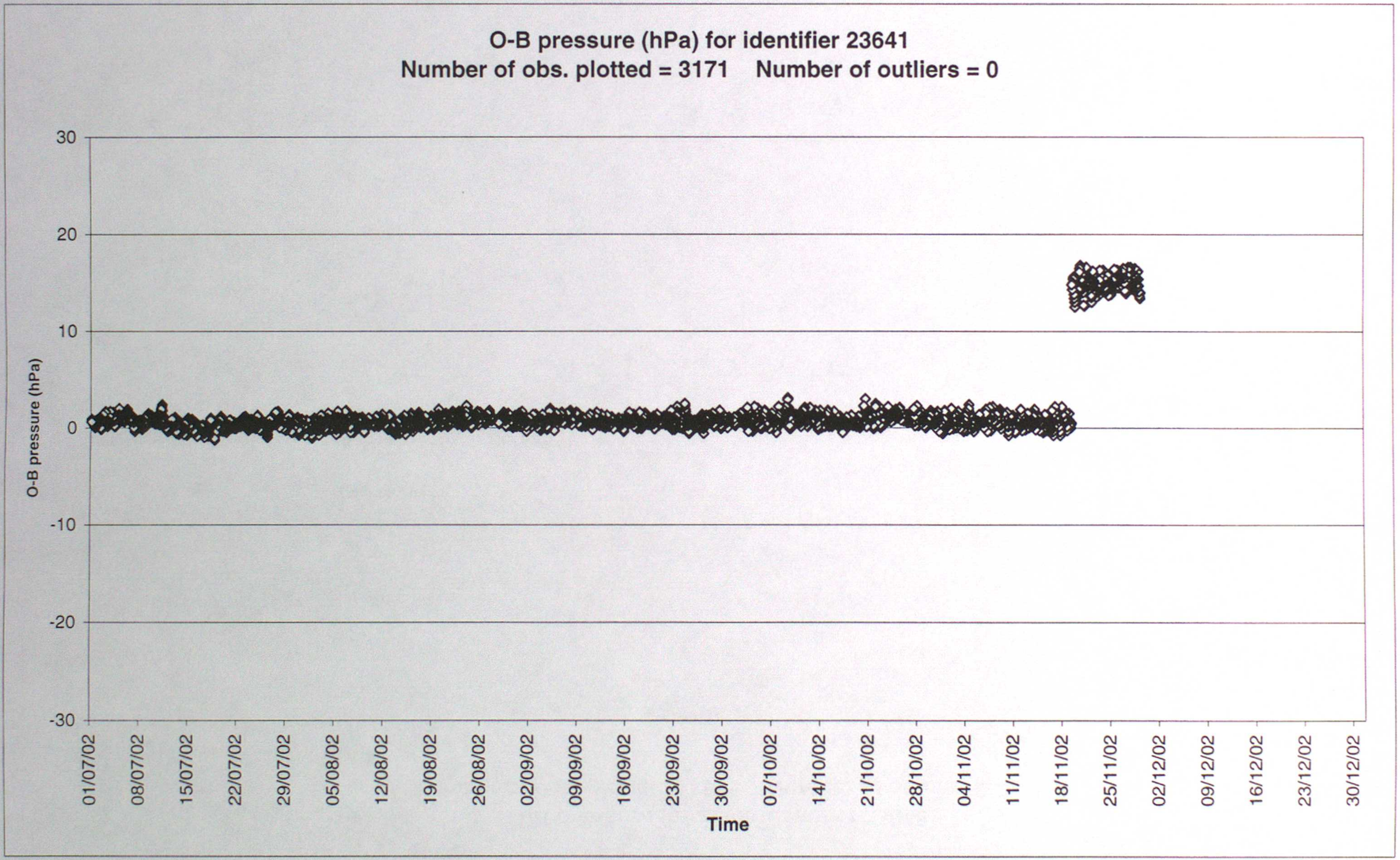
O-B pressure (hPa) for identifier 21596
Number of obs. plotted = 541   Number of outliers = 0



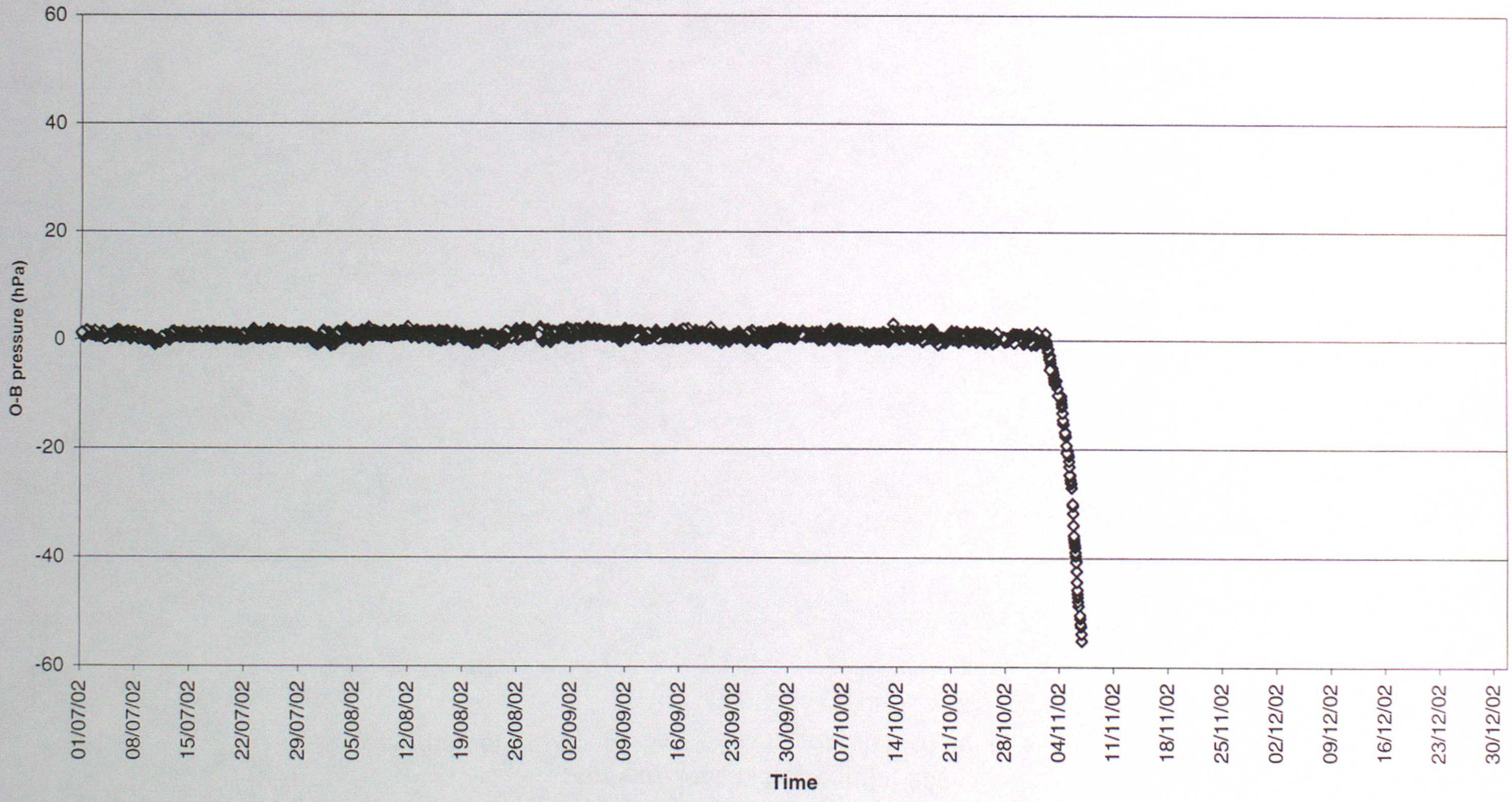


O-B pressure (hPa) for identifier 23562
Number of obs. plotted = 1473   Number of outliers = 0


O-B pressure (hPa) for identifier 23638
Number of obs. plotted = 1891 Number of outliers = 1
O-B pressure (hPa)
30
20
10
0
-10
-20
-30
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

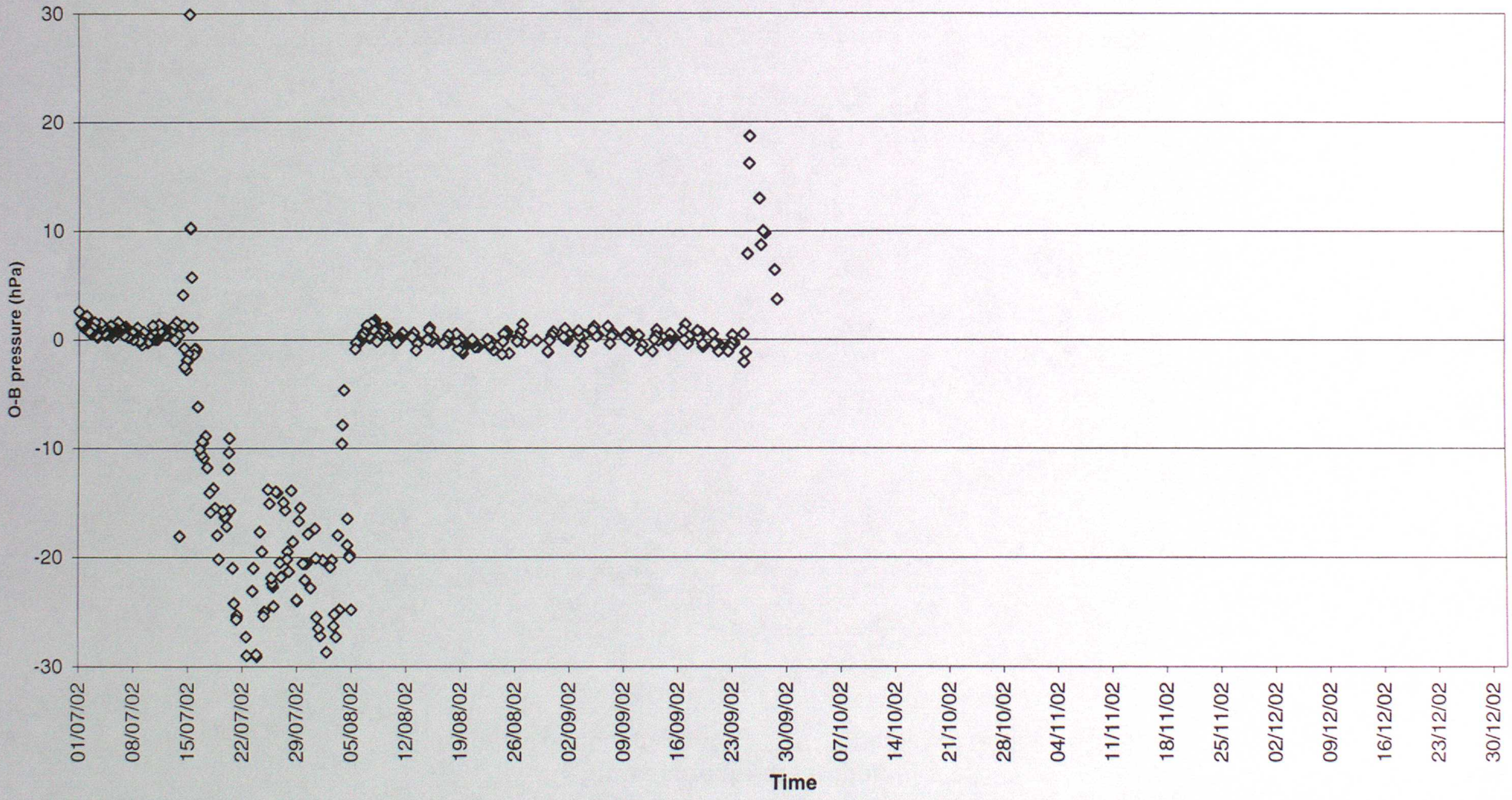


O-B pressure (hPa) for identifier 23641
Number of obs. plotted = 3171   Number of outliers = 0

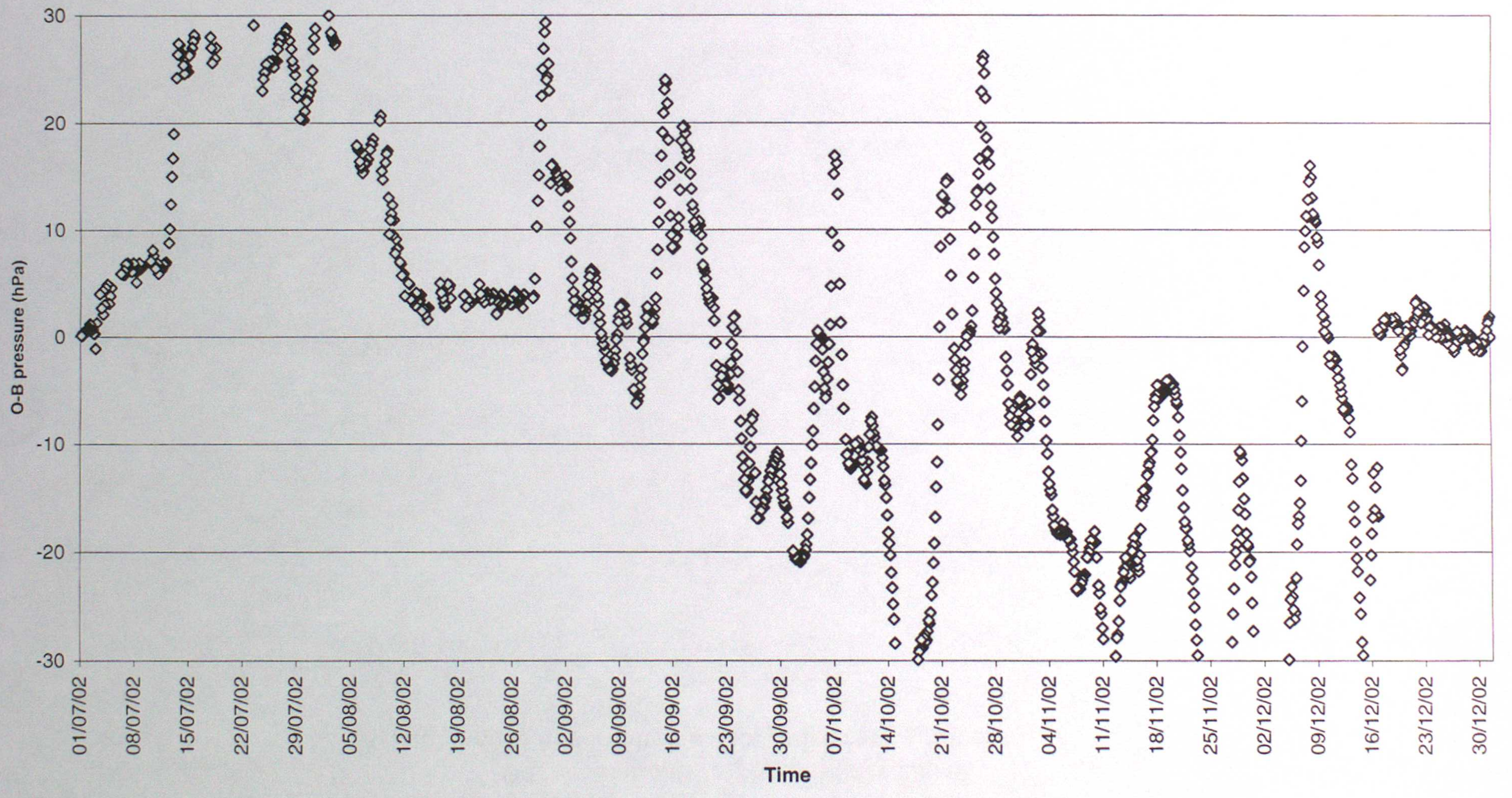


O-B pressure (hPa) for identifier 23648
Number of obs. plotted = 2875   Number of outliers = 33

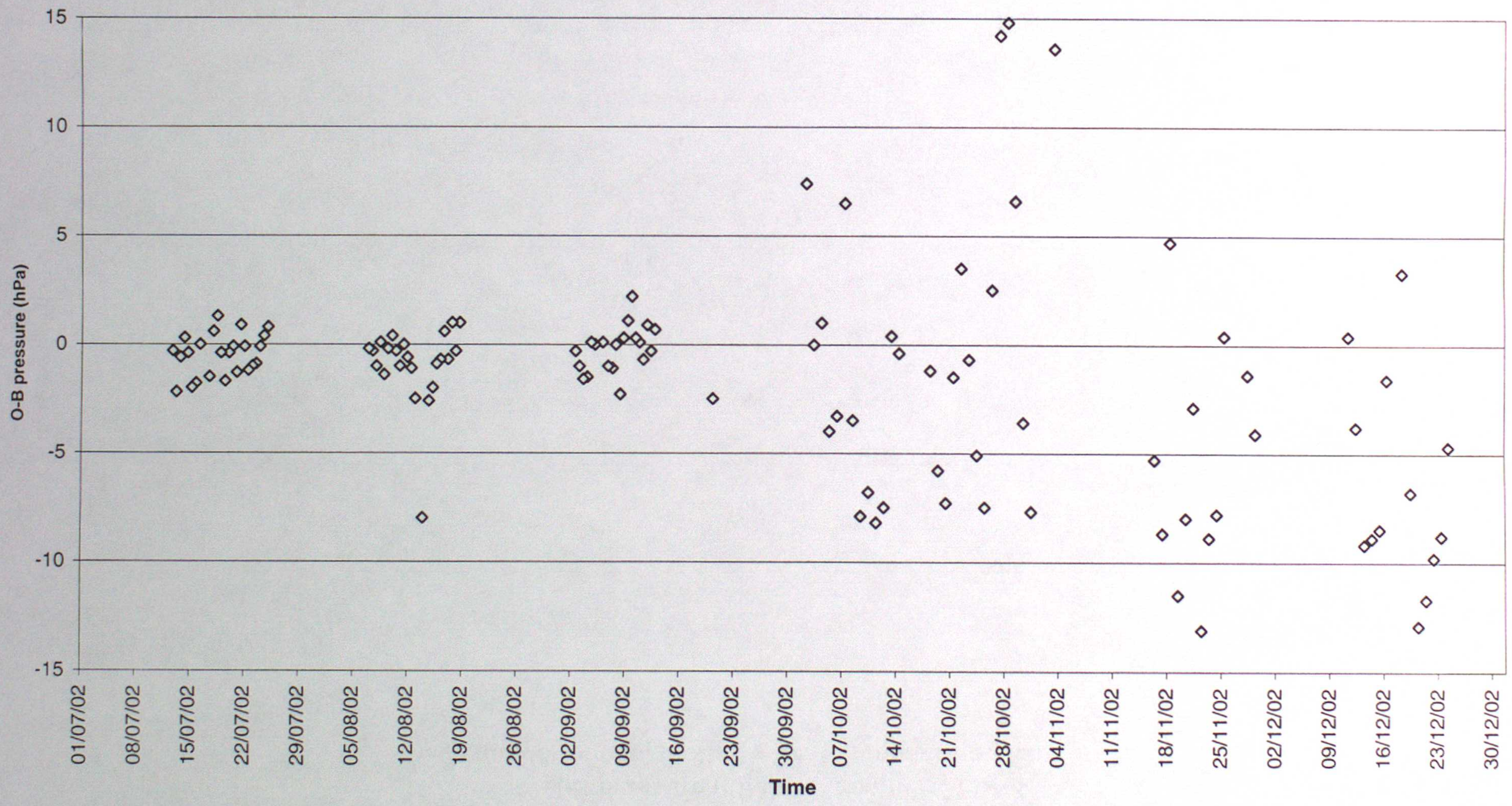
O-B pressure (hPa) for identifier 23949
Number of obs. plotted = 380   Number of outliers = 27

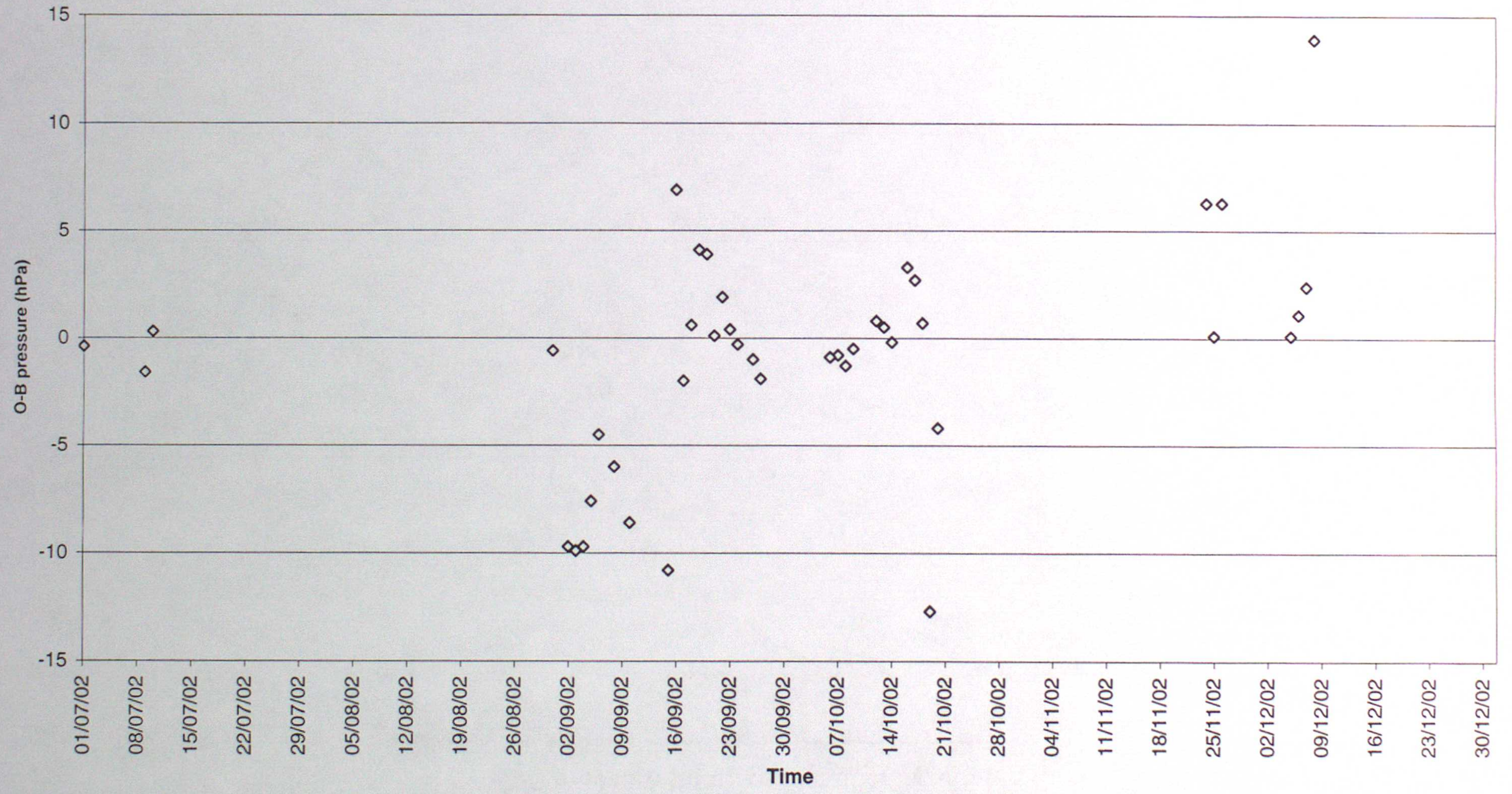


O-B pressure (hPa) for identifier 25571
Number of obs. plotted = 1101   Number of outliers = 126



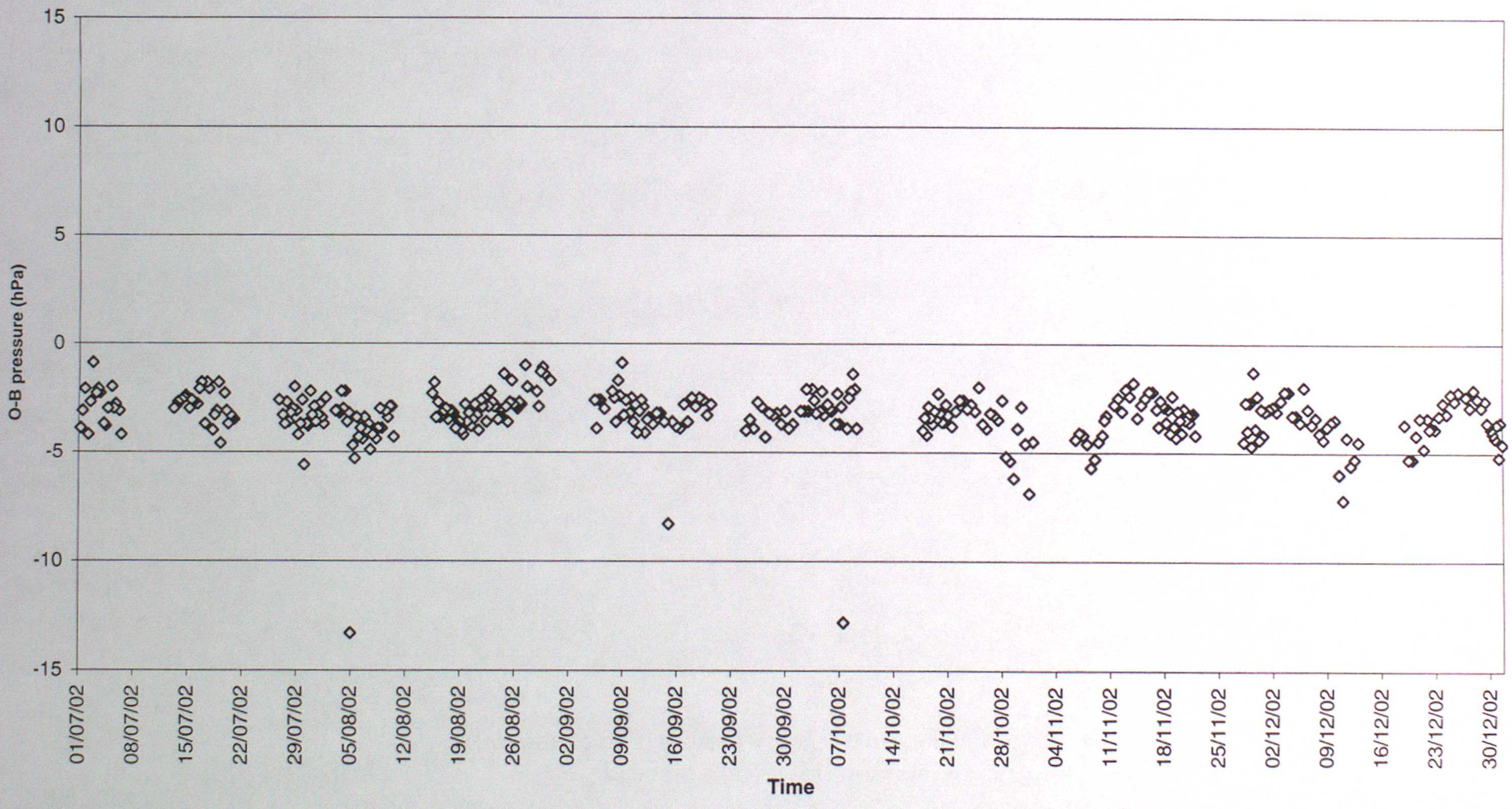
O-B pressure (hPa) for identifier 3FAP5
Number of obs. plotted = 121   Number of outliers = 3



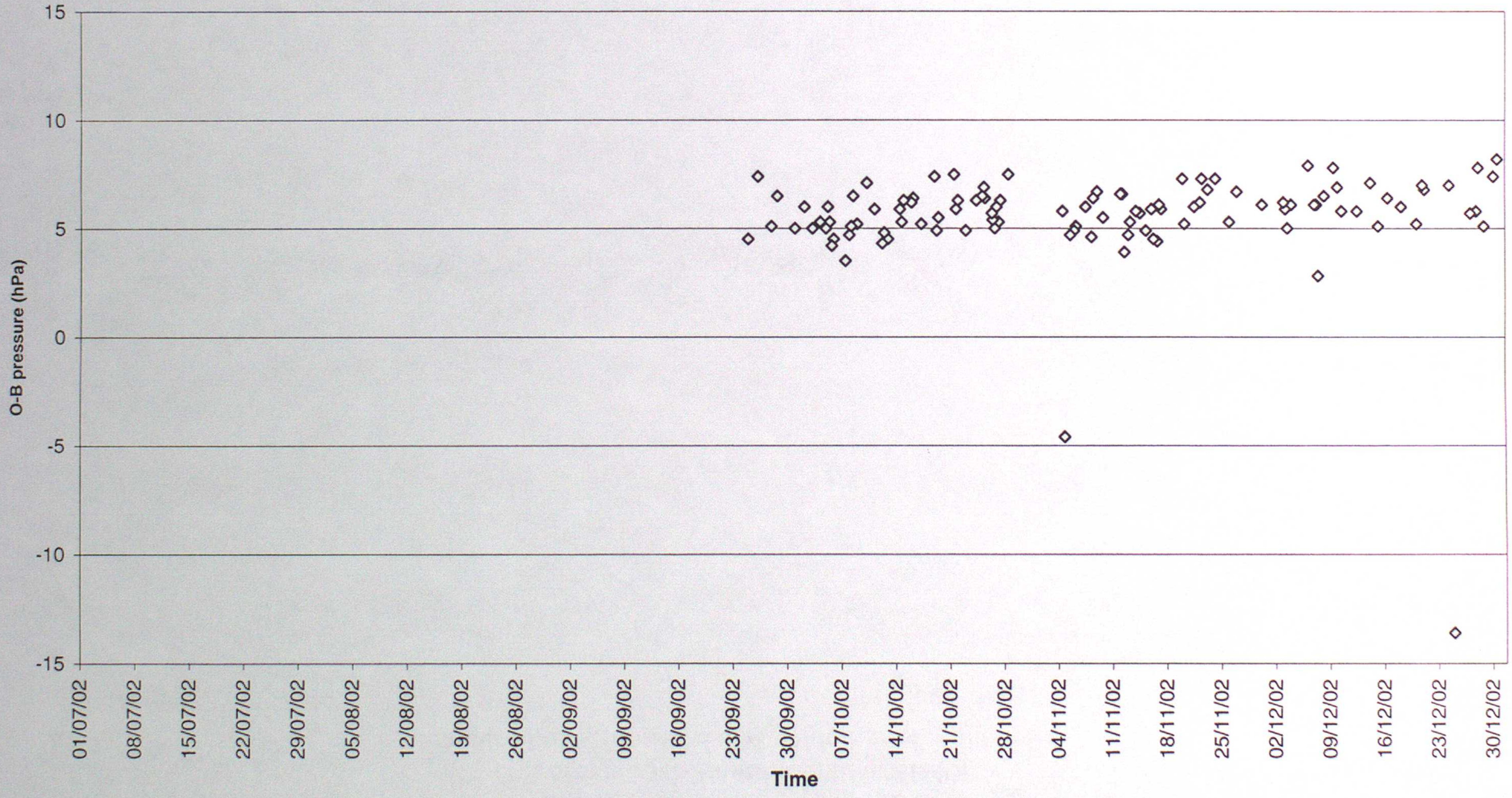


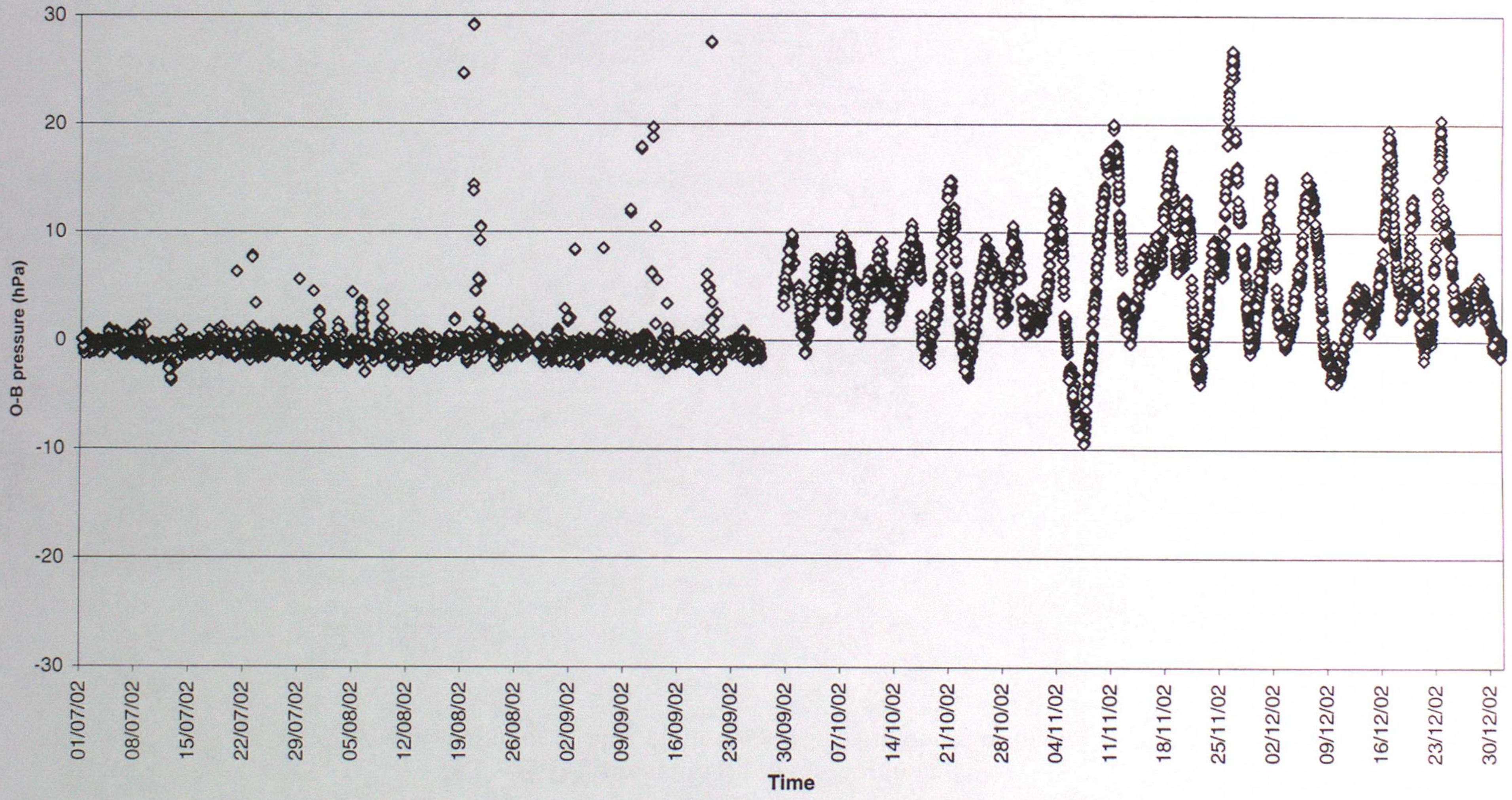
O-B pressure (hPa) for identifier 3FGN3
Number of obs. plotted = 42   Number of outliers = 1

O-B pressure (hPa) for identifier 3FKD6
Number of obs. plotted = 374   Number of outliers = 0

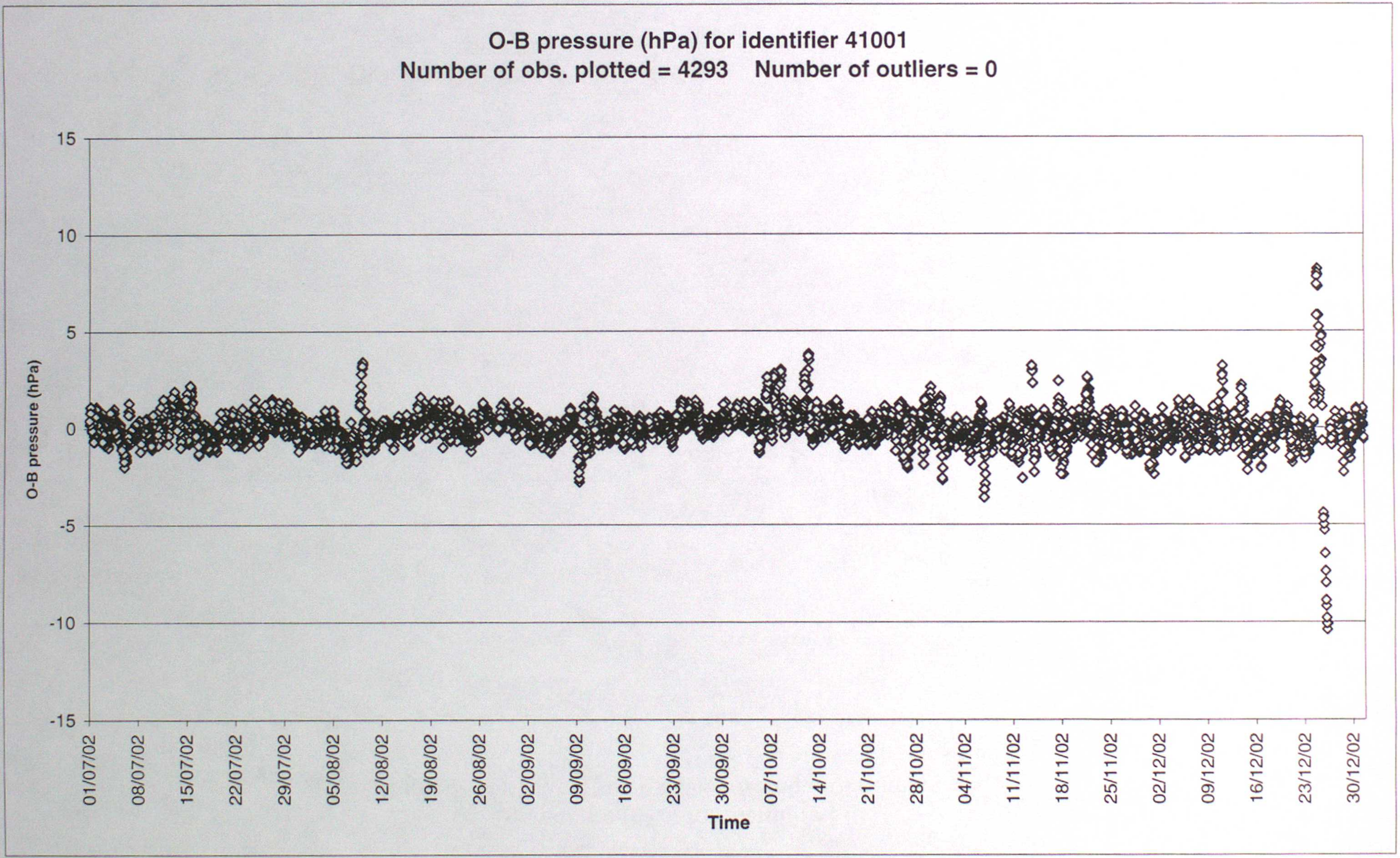


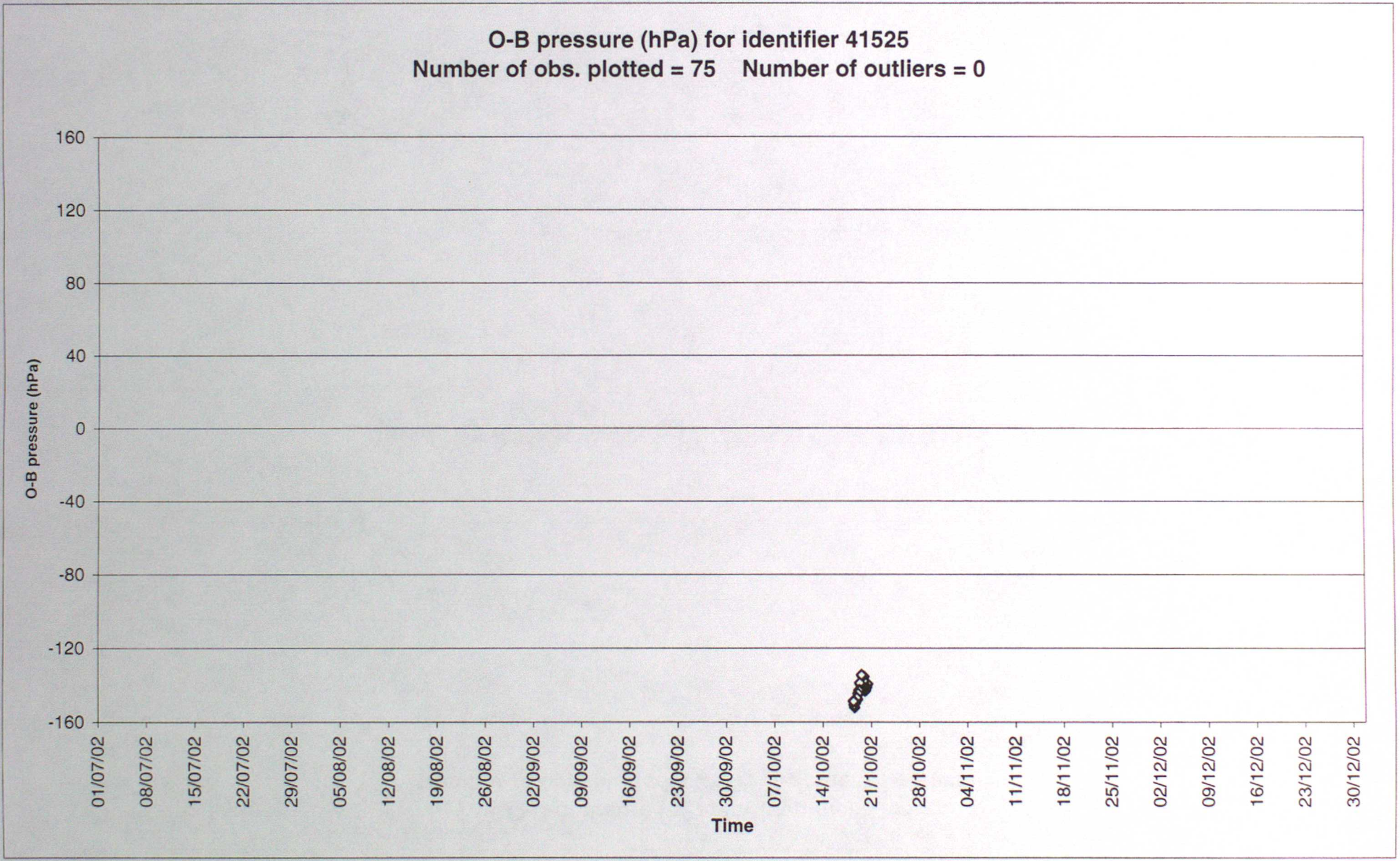
O-B pressure (hPa) for identifier 3FOC5
Number of obs. plotted = 108   Number of outliers = 0



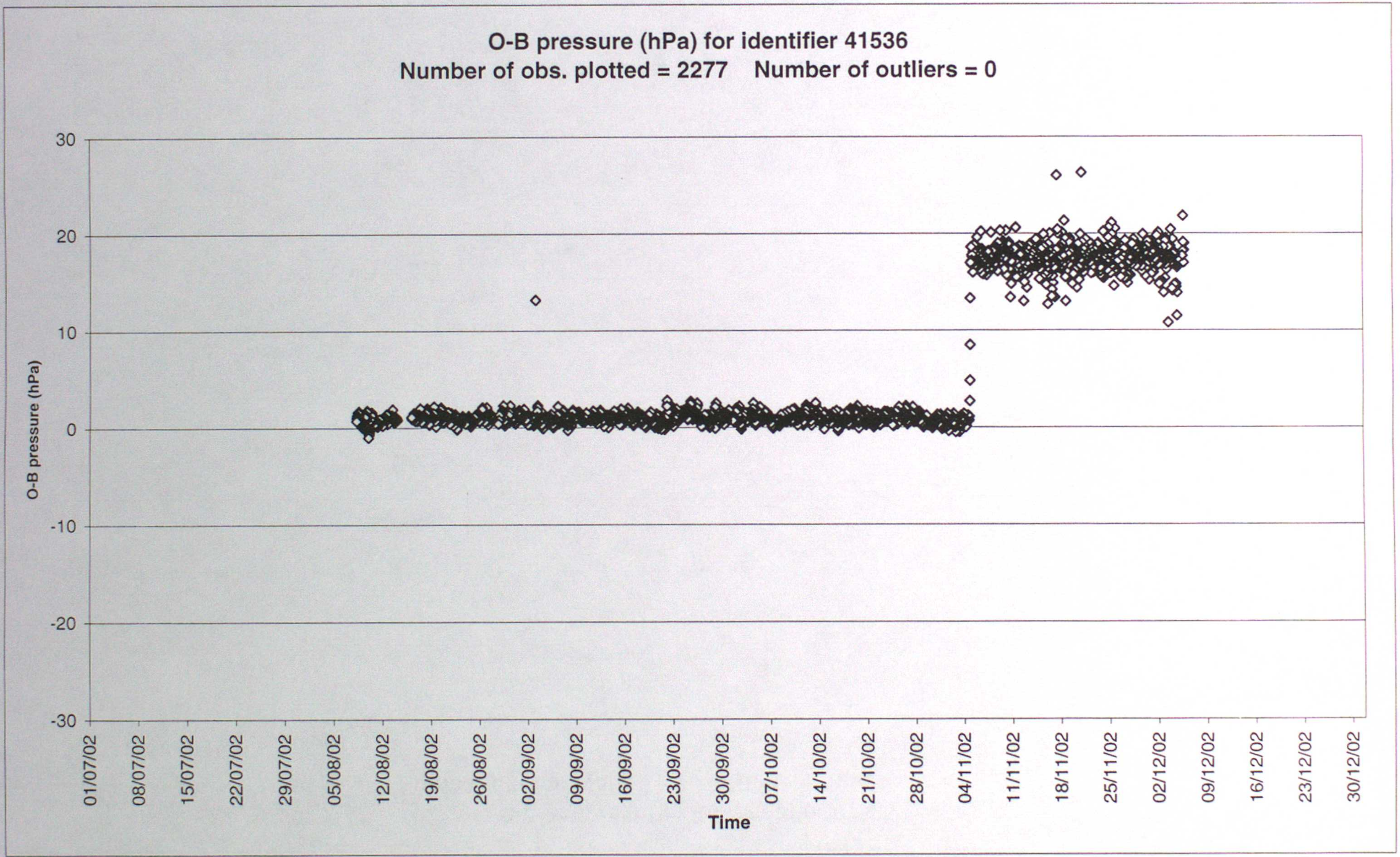


O-B pressure (hPa) for identifier 31057
Number of obs. plotted = 6693   Number of outliers = 8


O-B pressure (hPa) for identifier 41001
Number of obs. plotted = 4293   Number of outliers = 0
O-B pressure (hPa)
15
10
5
0
-5
-10
-15
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

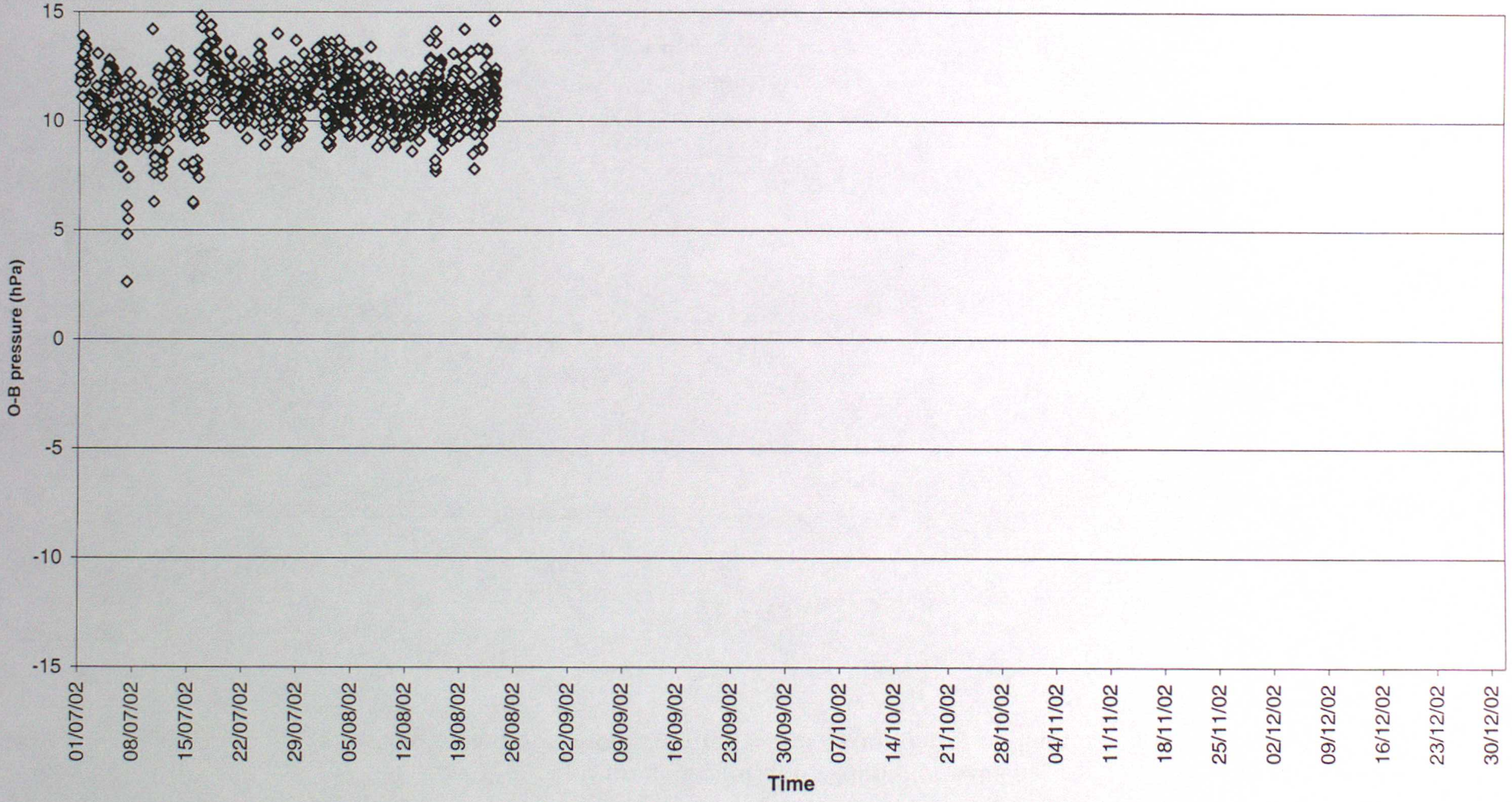


O-B pressure (hPa) for identifier 41525
Number of obs. plotted = 75   Number of outliers = 0

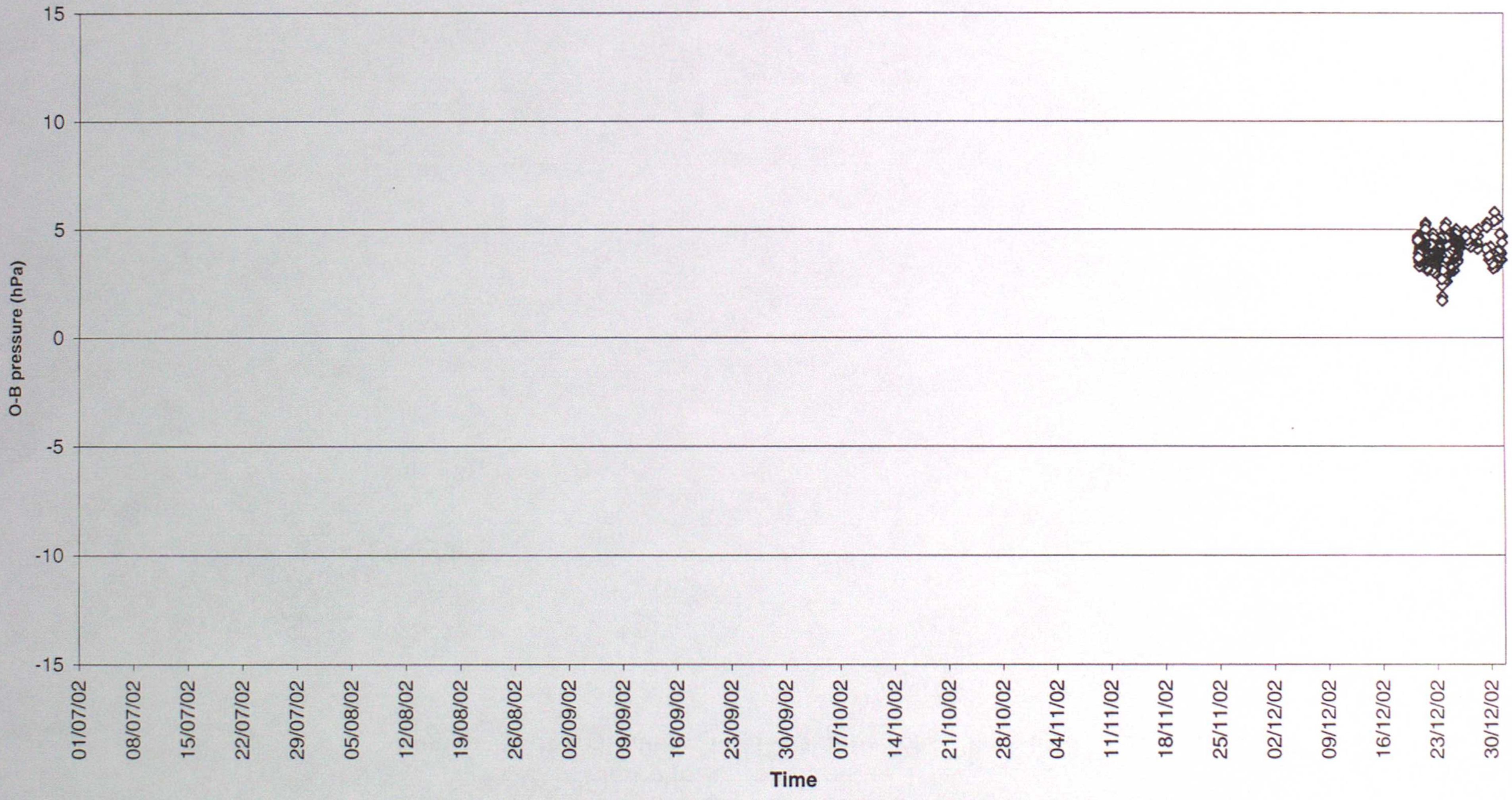


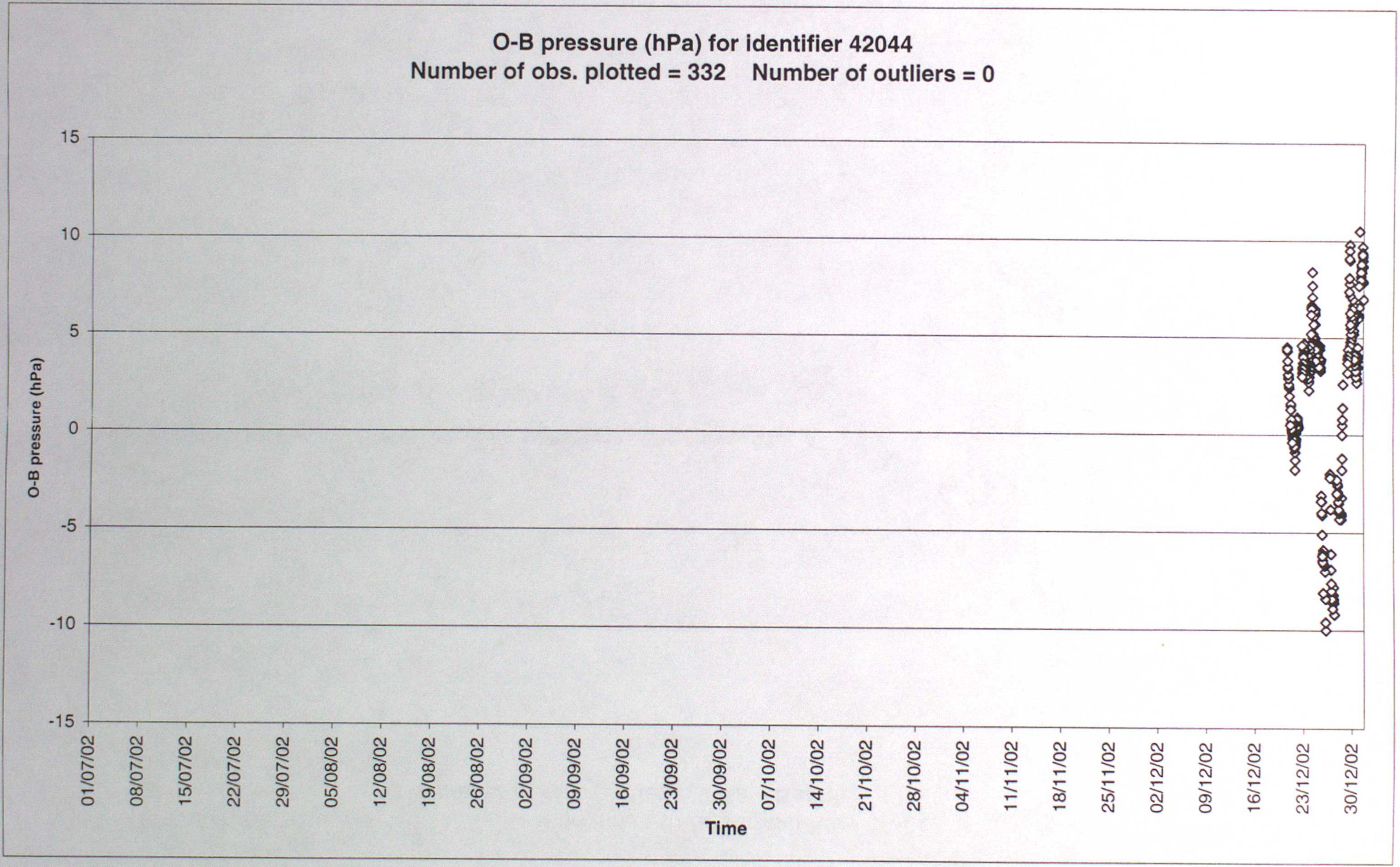
O-B pressure (hPa) for identifier 41536
Number of obs. plotted = 2277   Number of outliers = 0

O-B pressure (hPa) for identifier 41665
Number of obs. plotted = 1475   Number of outliers = 10



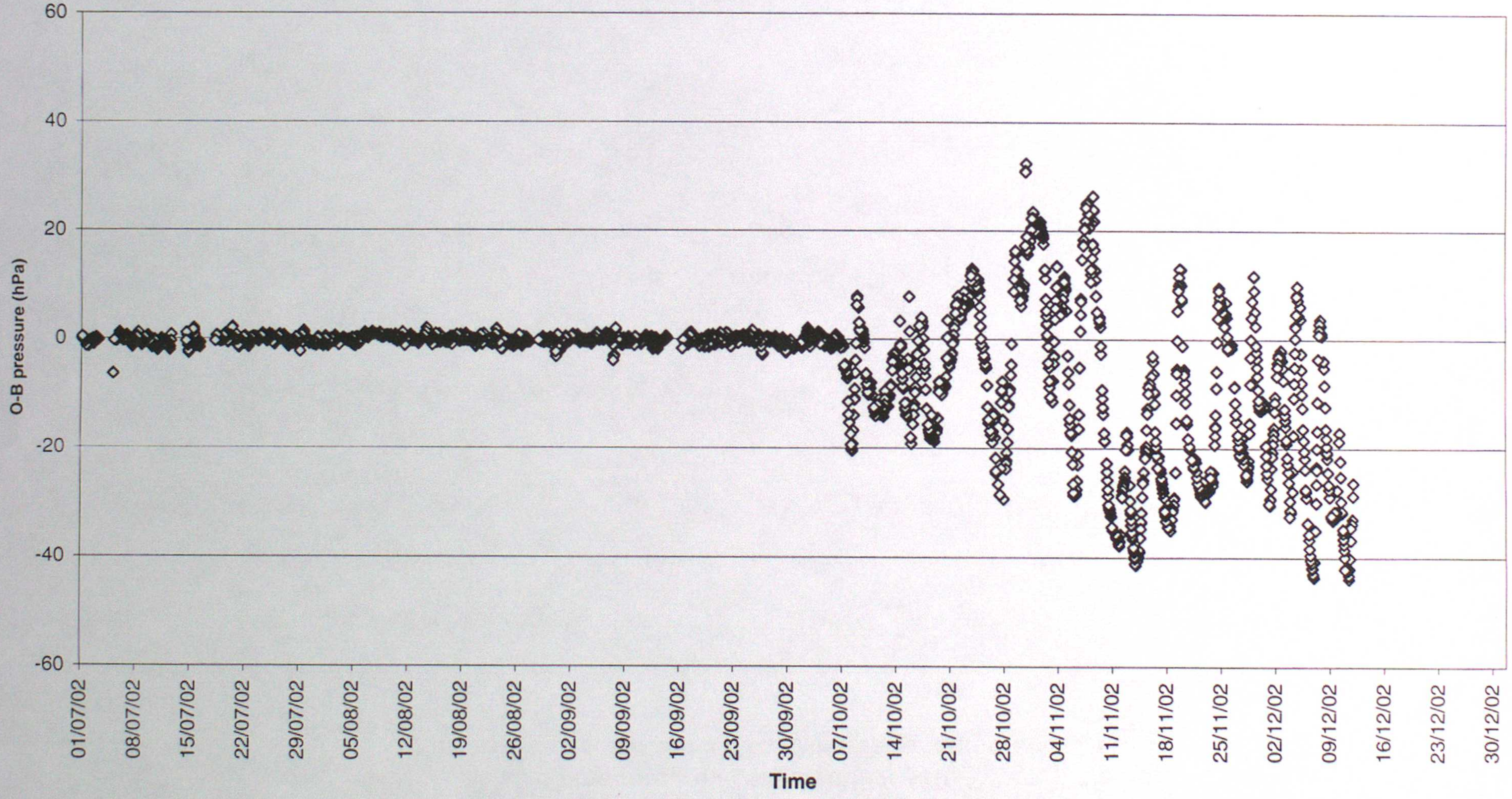
O-B pressure (hPa) for identifier 42043
Number of obs. plotted = 263   Number of outliers = 0

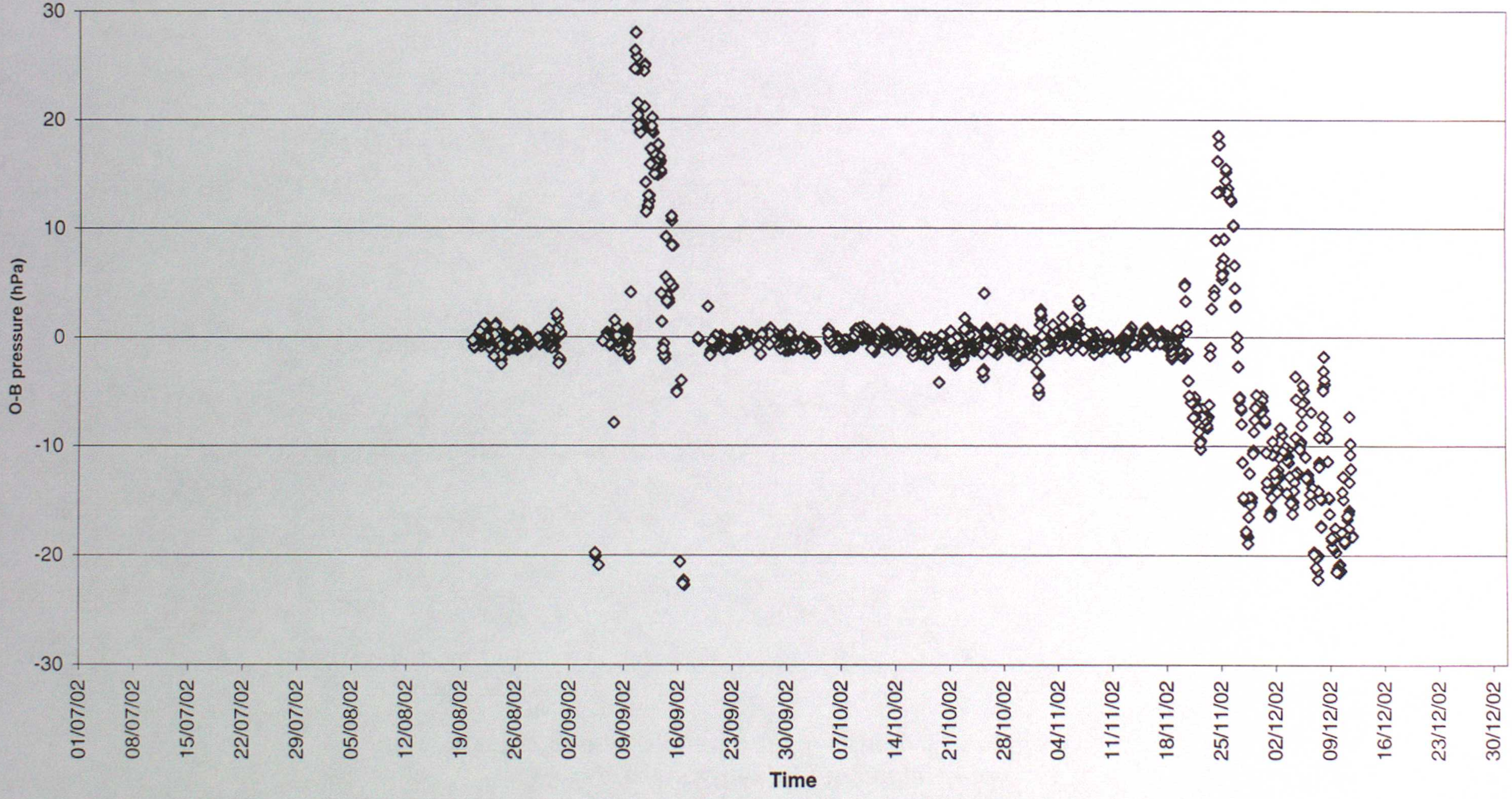




O-B pressure (hPa) for identifier 42044
Number of obs. plotted = 332   Number of outliers = 0

O-B pressure (hPa) for identifier 44504
Number of obs. plotted = 2419   Number of outliers = 0

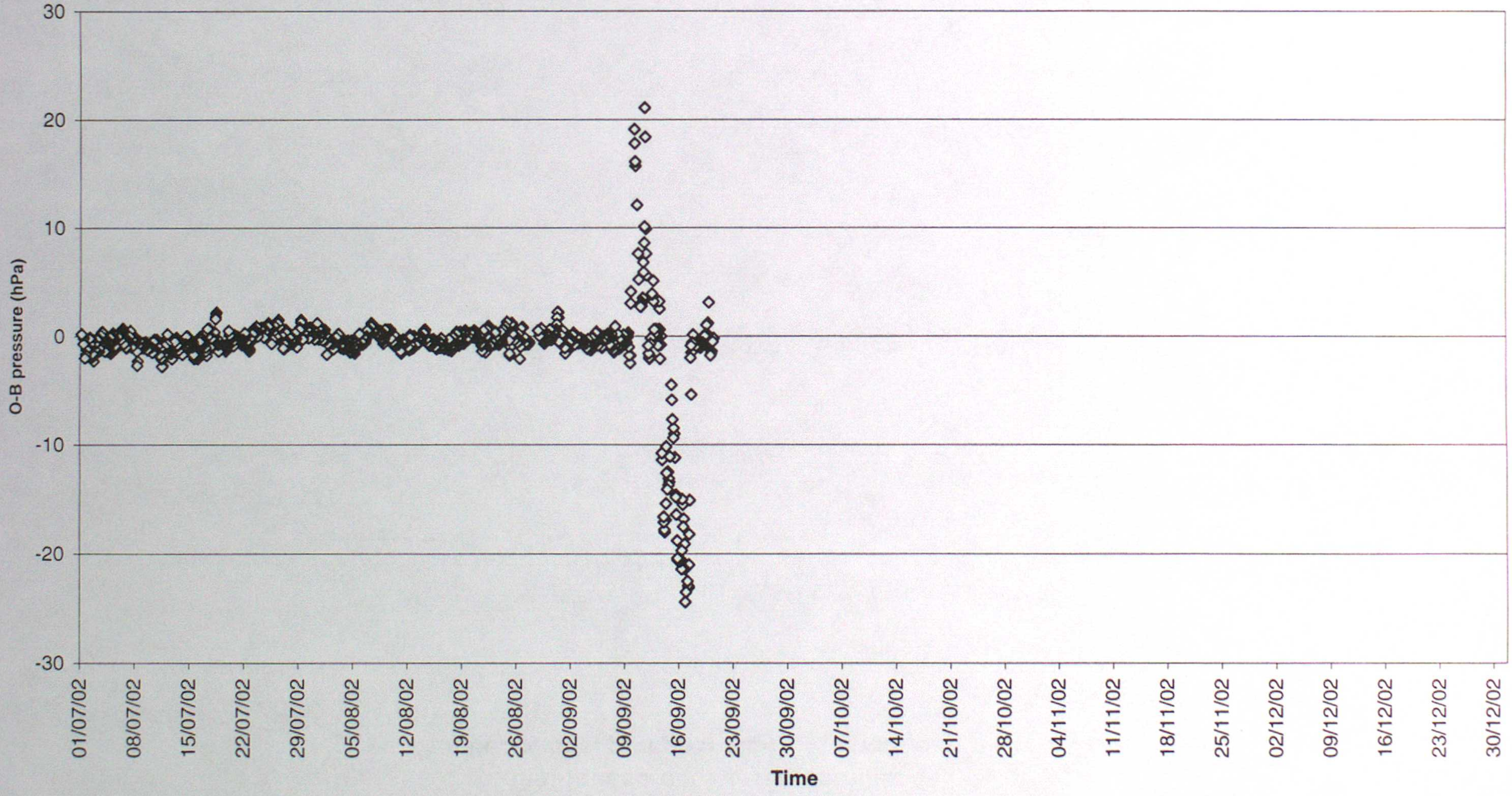




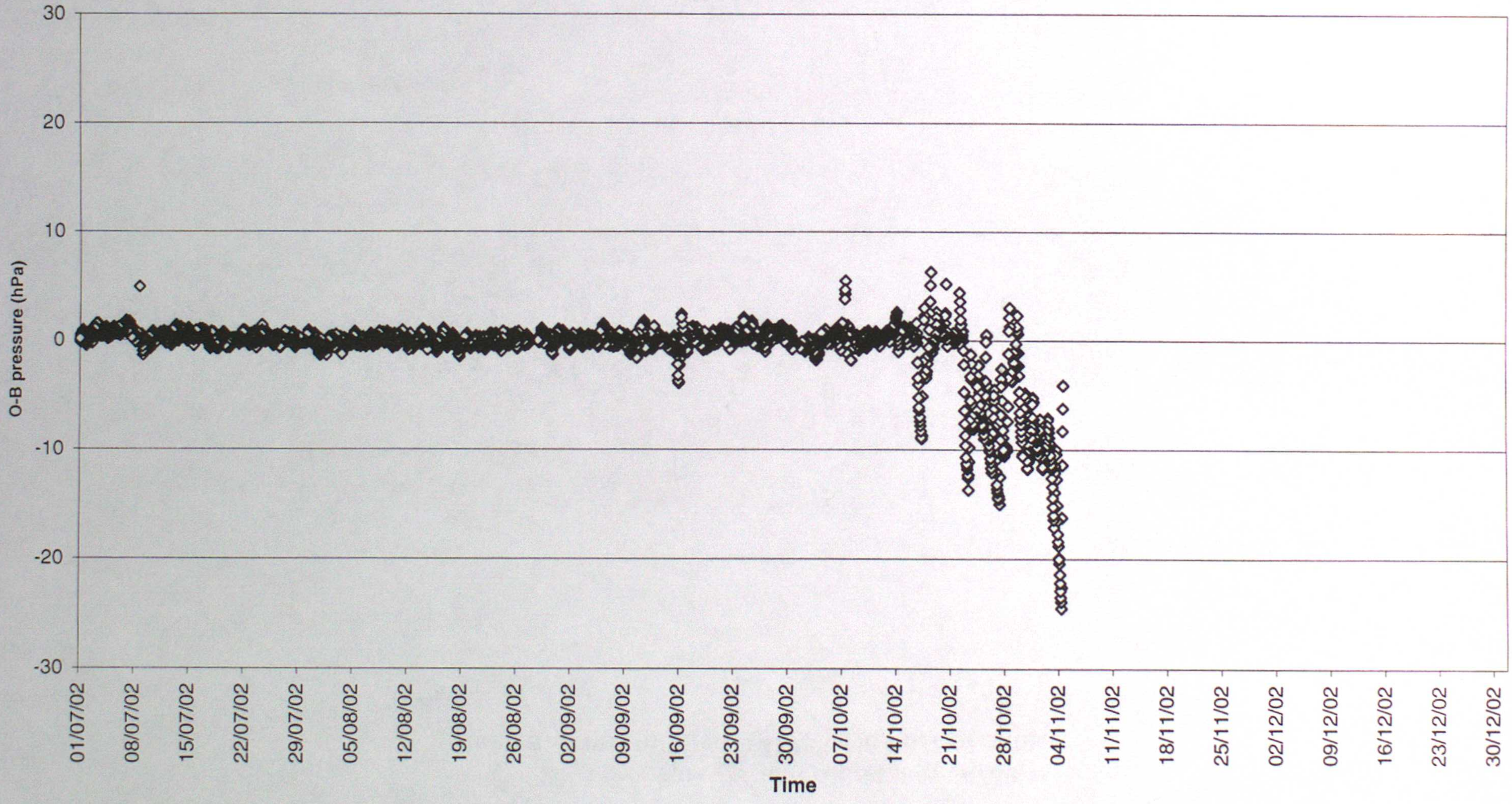
O-B pressure (hPa) for identifier 44511
Number of obs. plotted = 1251   Number of outliers = 5

O-B pressure (hPa) for identifier 44517

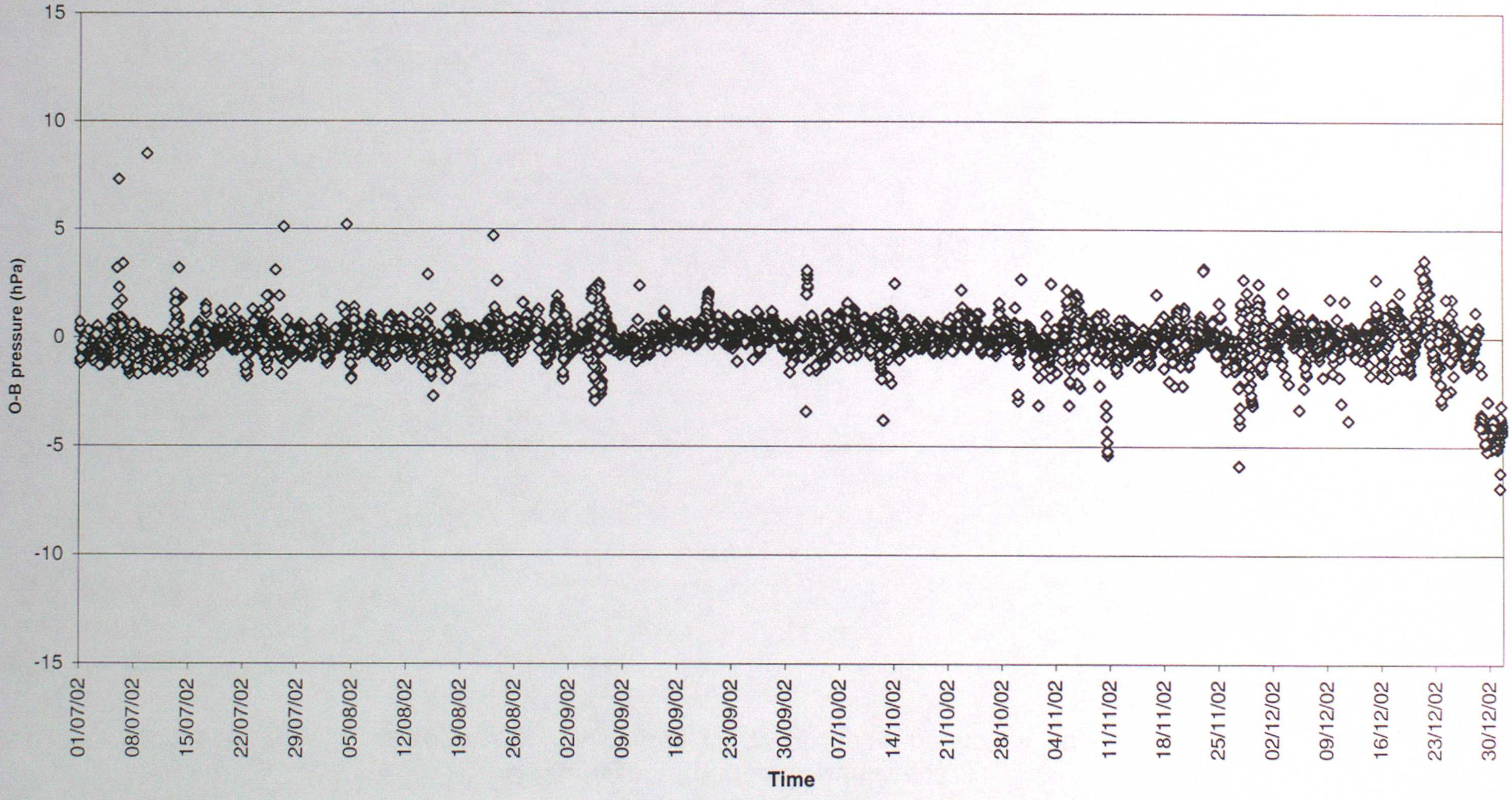
Number of obs. plotted = 1055   Number of outliers = 0

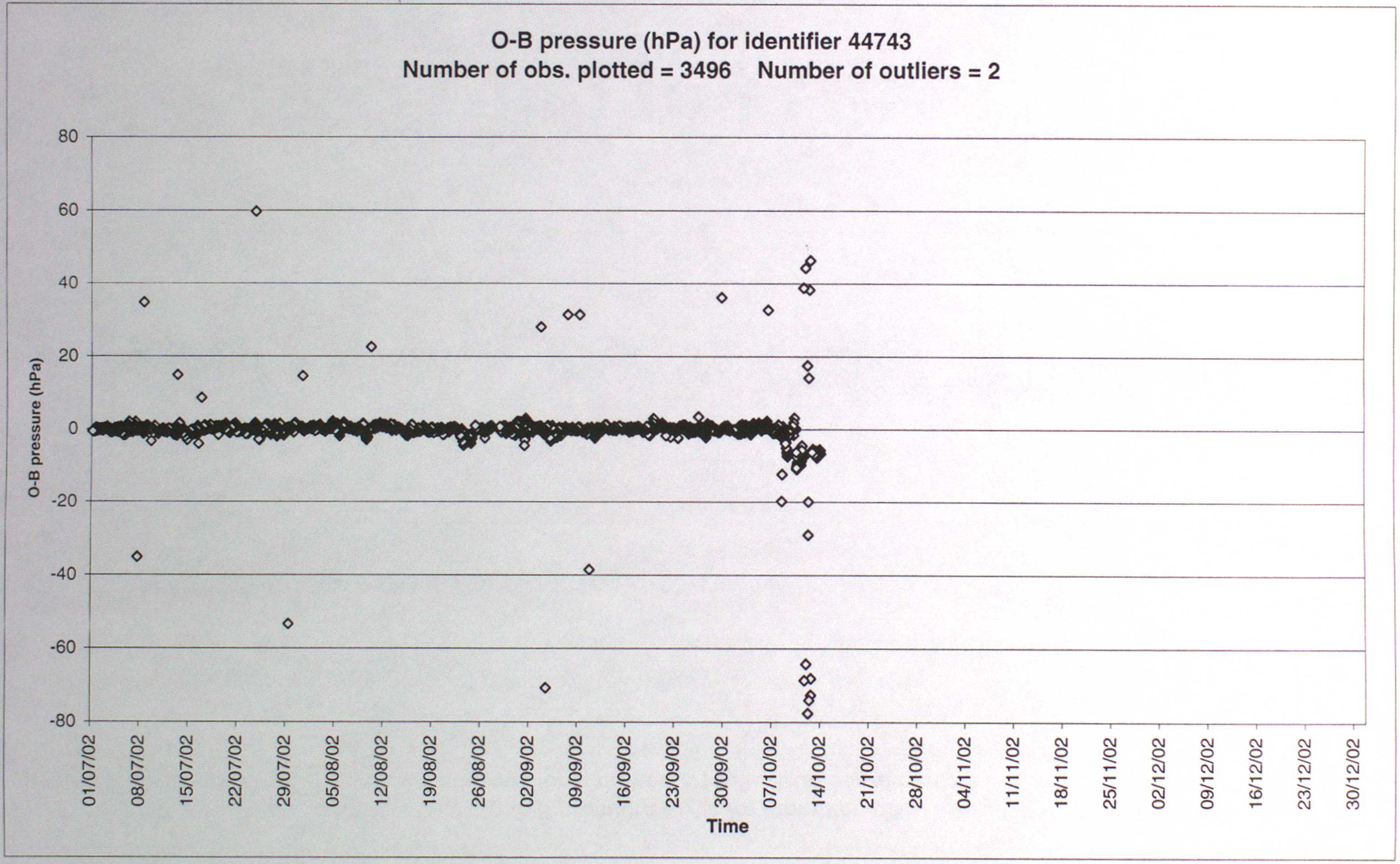


O-B pressure (hPa) for identifier 44624
Number of obs. plotted = 3333   Number of outliers = 0

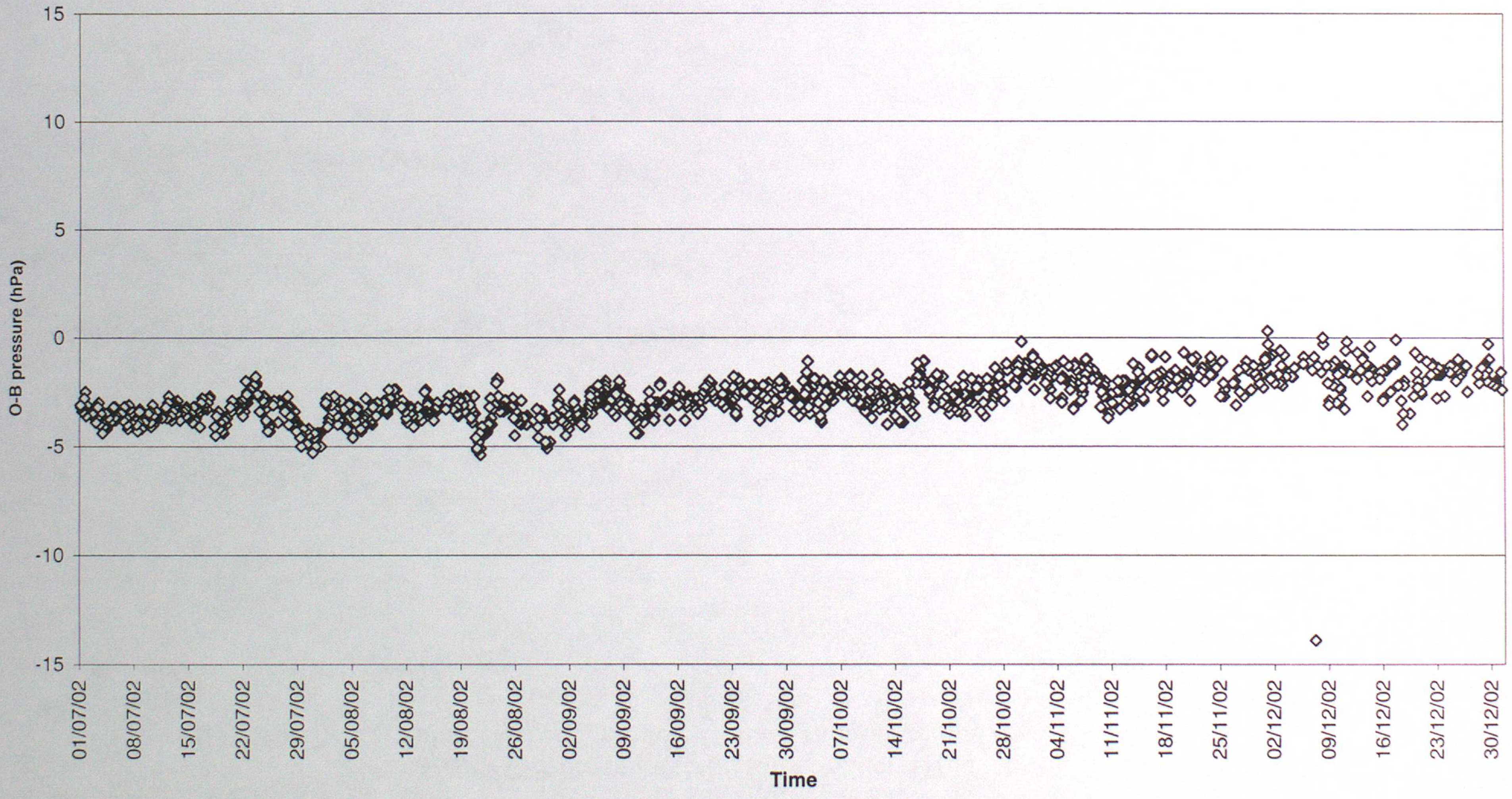


O-B pressure (hPa) for identifier 44730
Number of obs. plotted = 4773   Number of outliers = 1

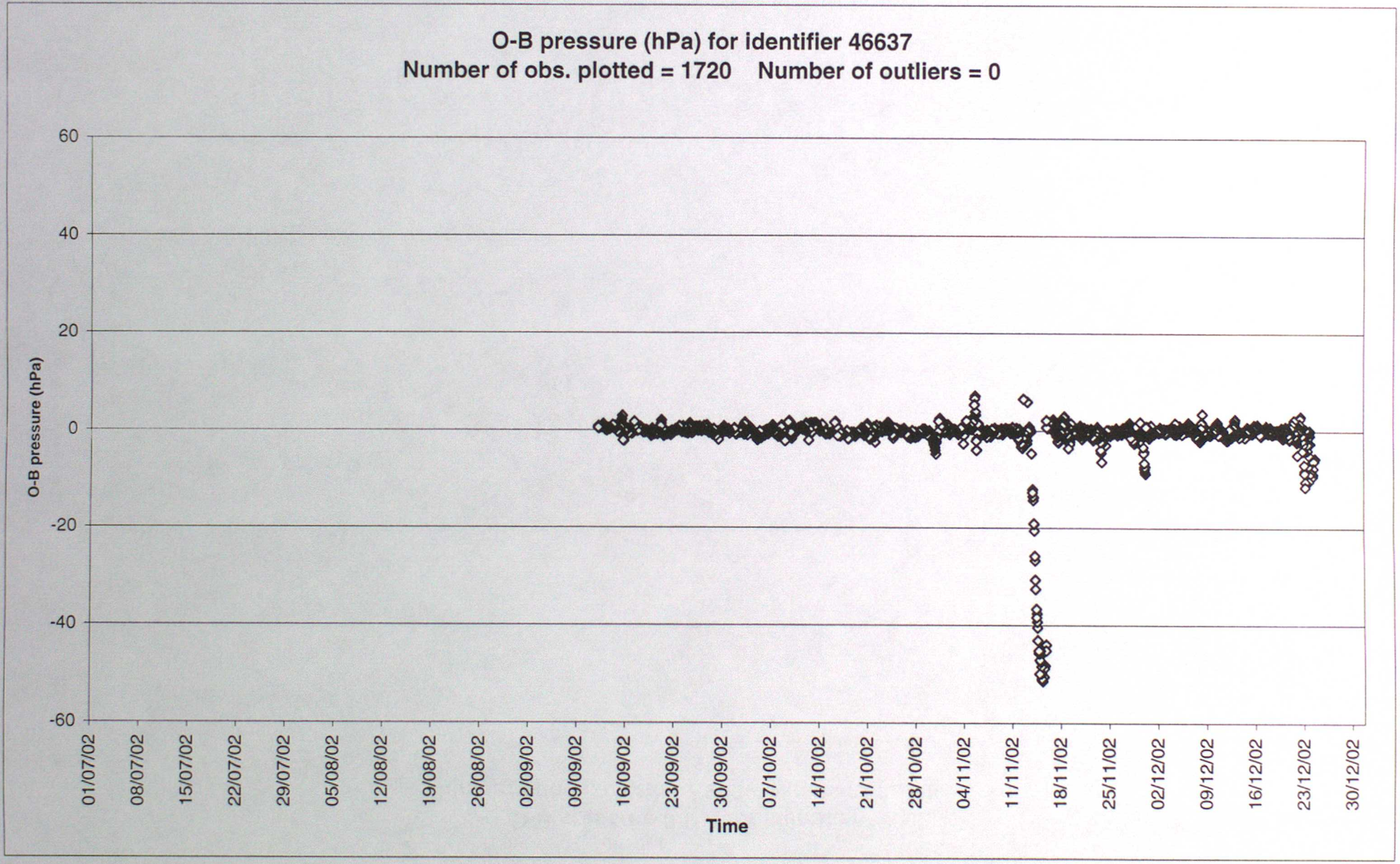




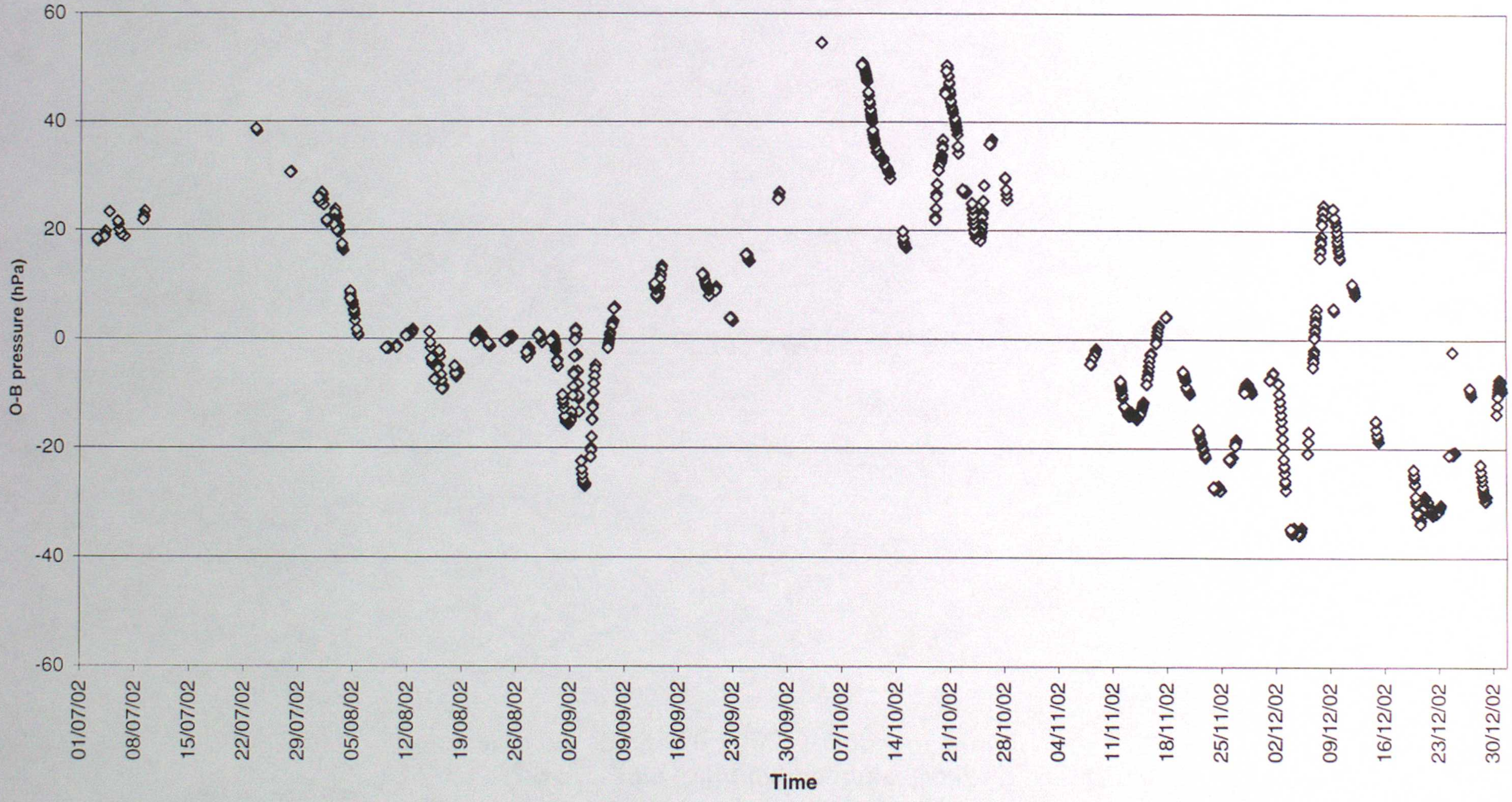
O-B pressure (hPa) for identifier 44743
Number of obs. plotted = 3496   Number of outliers = 2

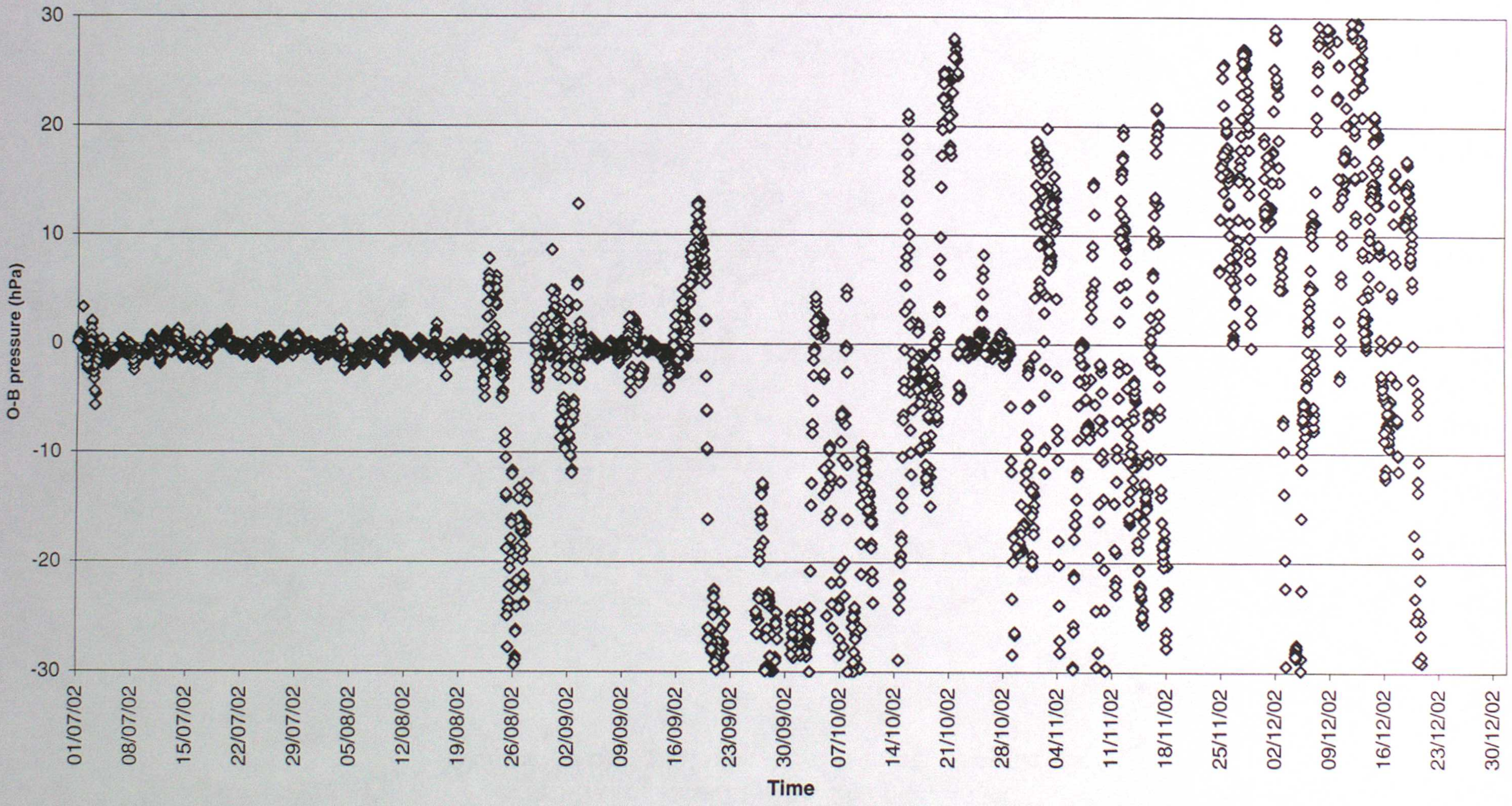


O-B pressure (hPa) for identifier 46561
Number of obs. plotted = 1165   Number of outliers = 0

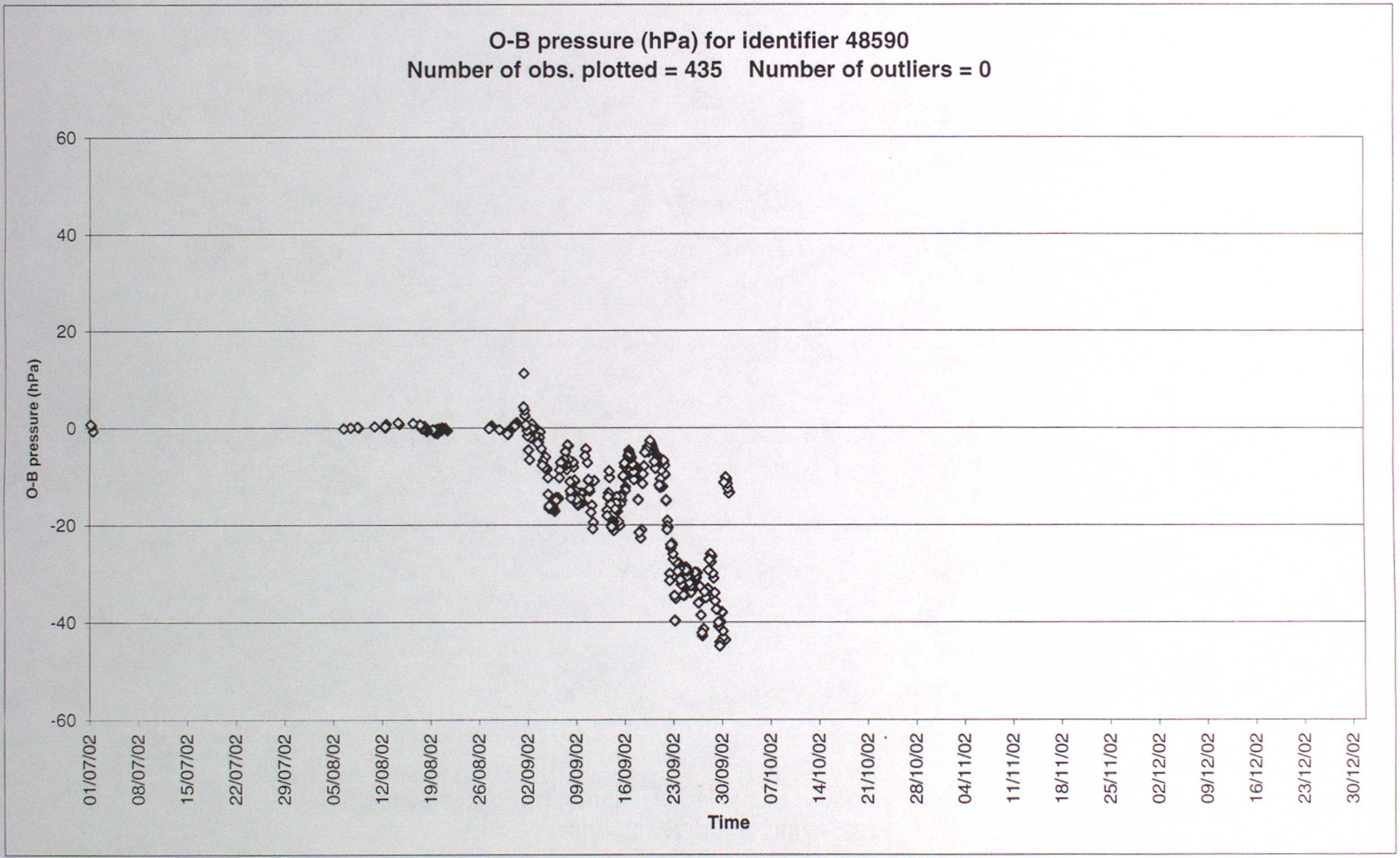

O-B pressure (hPa) for identifier 46637
Number of obs. plotted = 1720   Number of outliers = 0

O-B pressure (hPa) for identifier 48092
Number of obs. plotted = 993   Number of outliers = 0



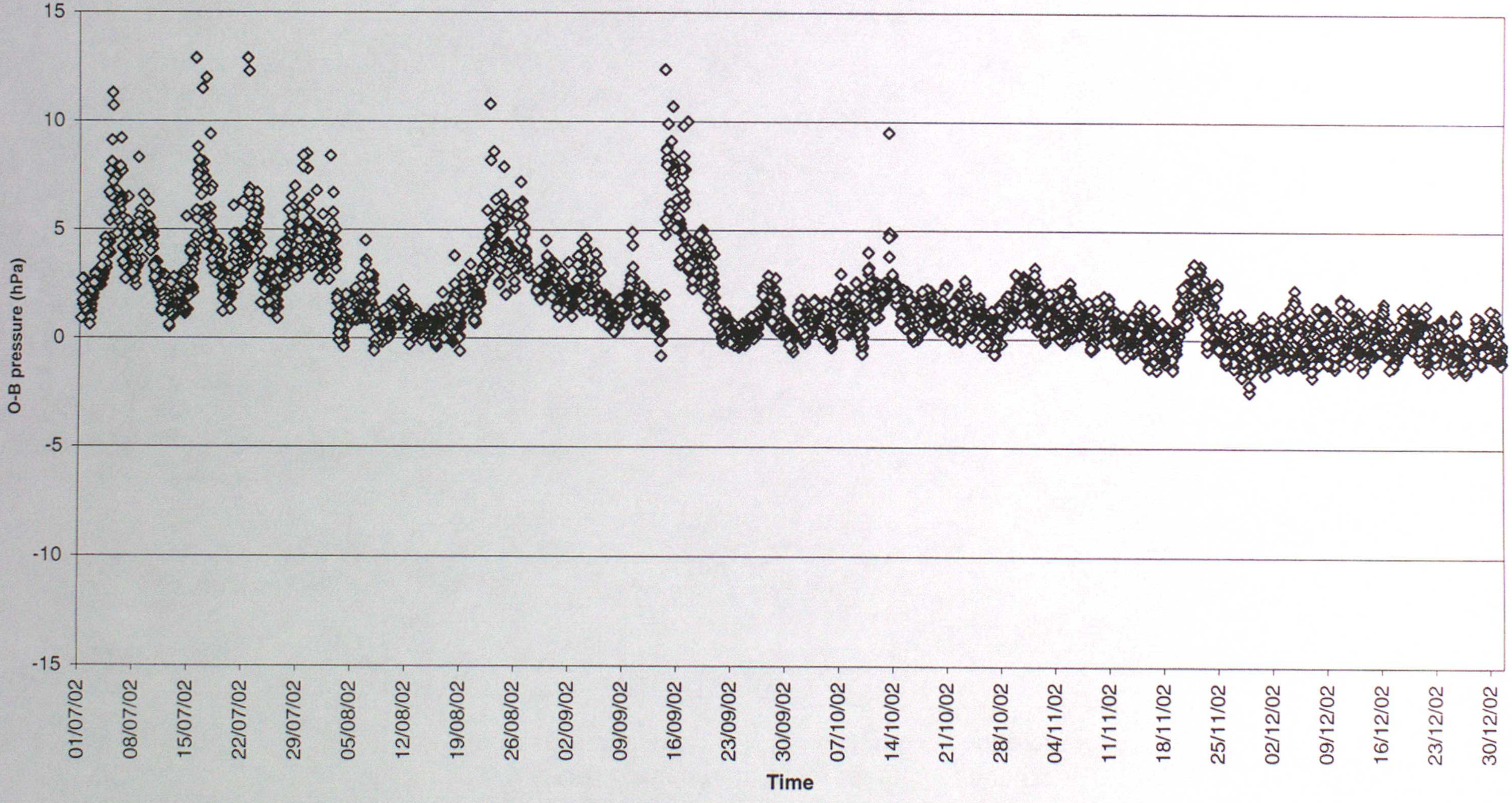


O-B pressure (hPa) for identifier 48574
Number of obs. plotted = 3437   Number of outliers = 498

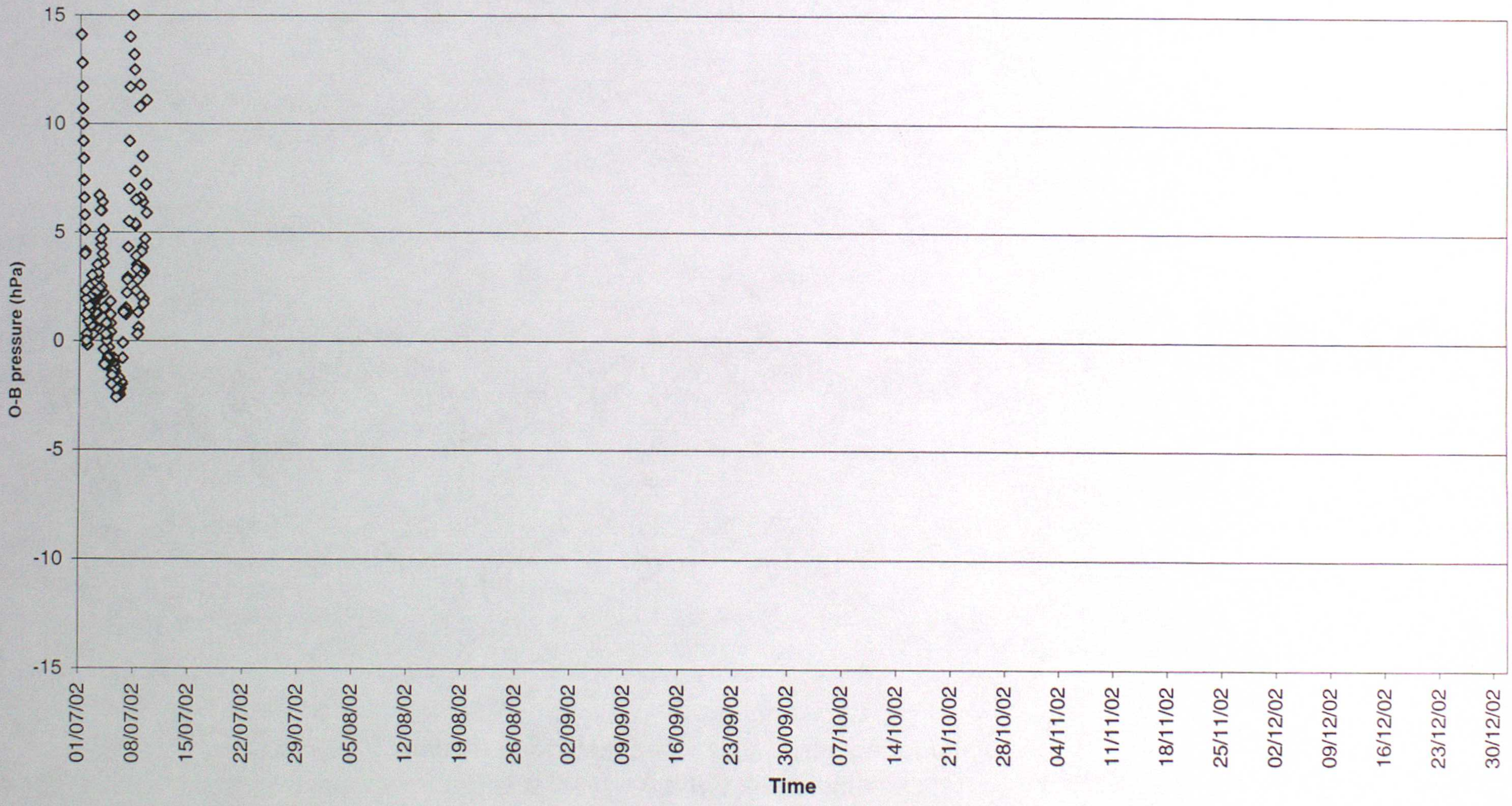


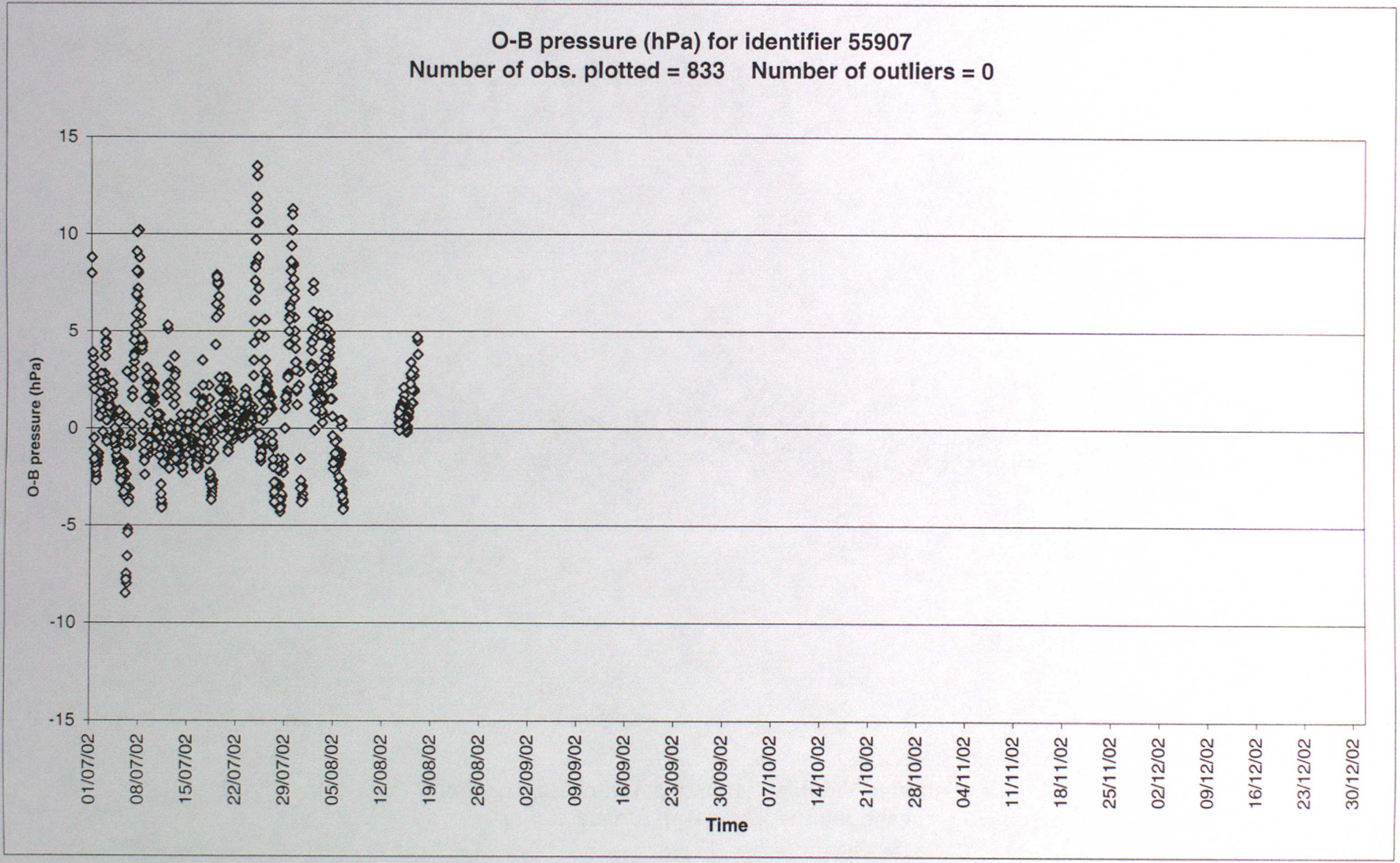
O-B pressure (hPa) for identifier 48590
Number of obs. plotted = 435 Number of outliers = 0

O-B pressure (hPa) for identifier 53561
Number of obs. plotted = 3506   Number of outliers = 1



O-B pressure (hPa) for identifier 55906
Number of obs. plotted = 171   Number of outliers = 17

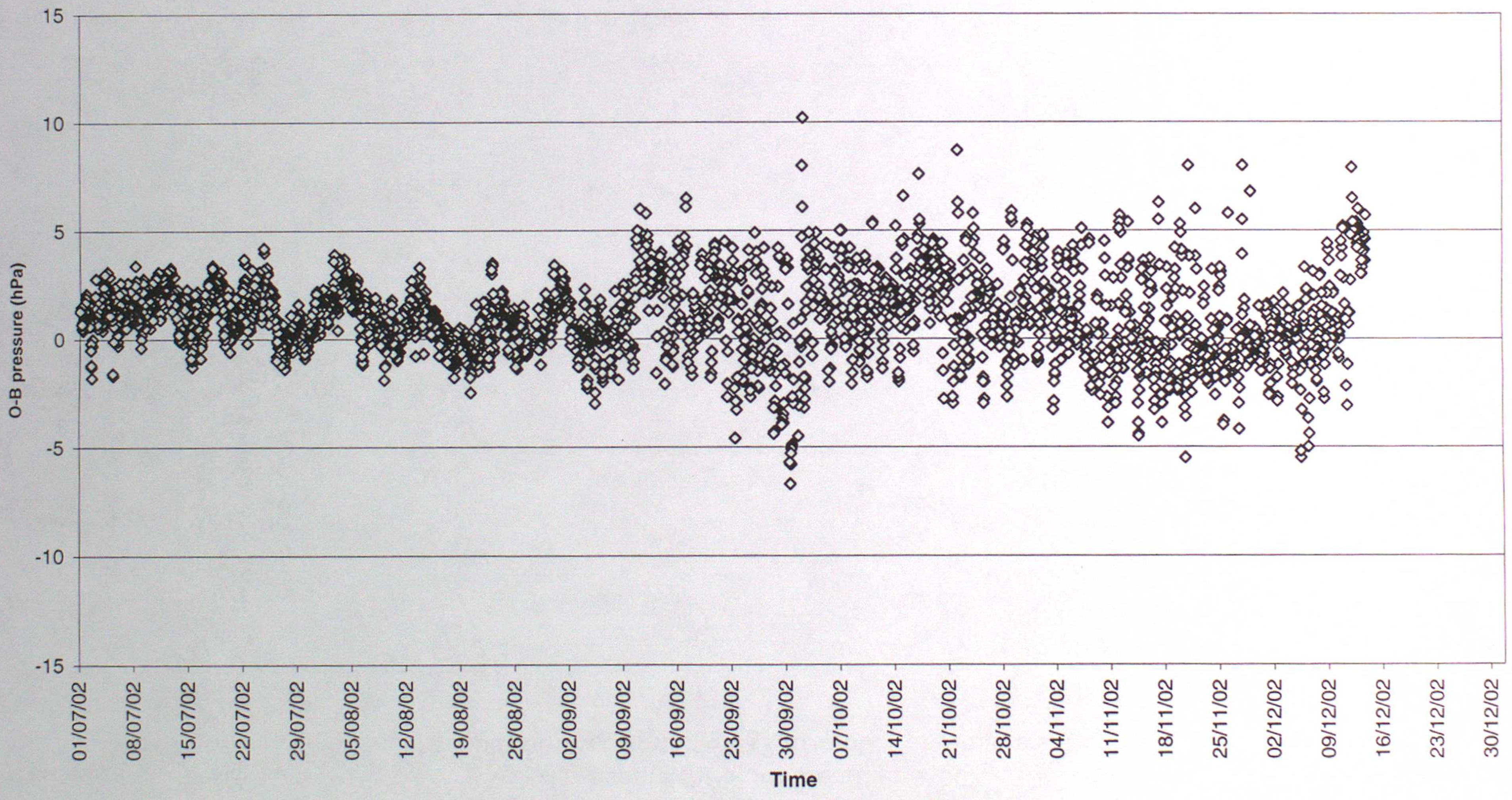




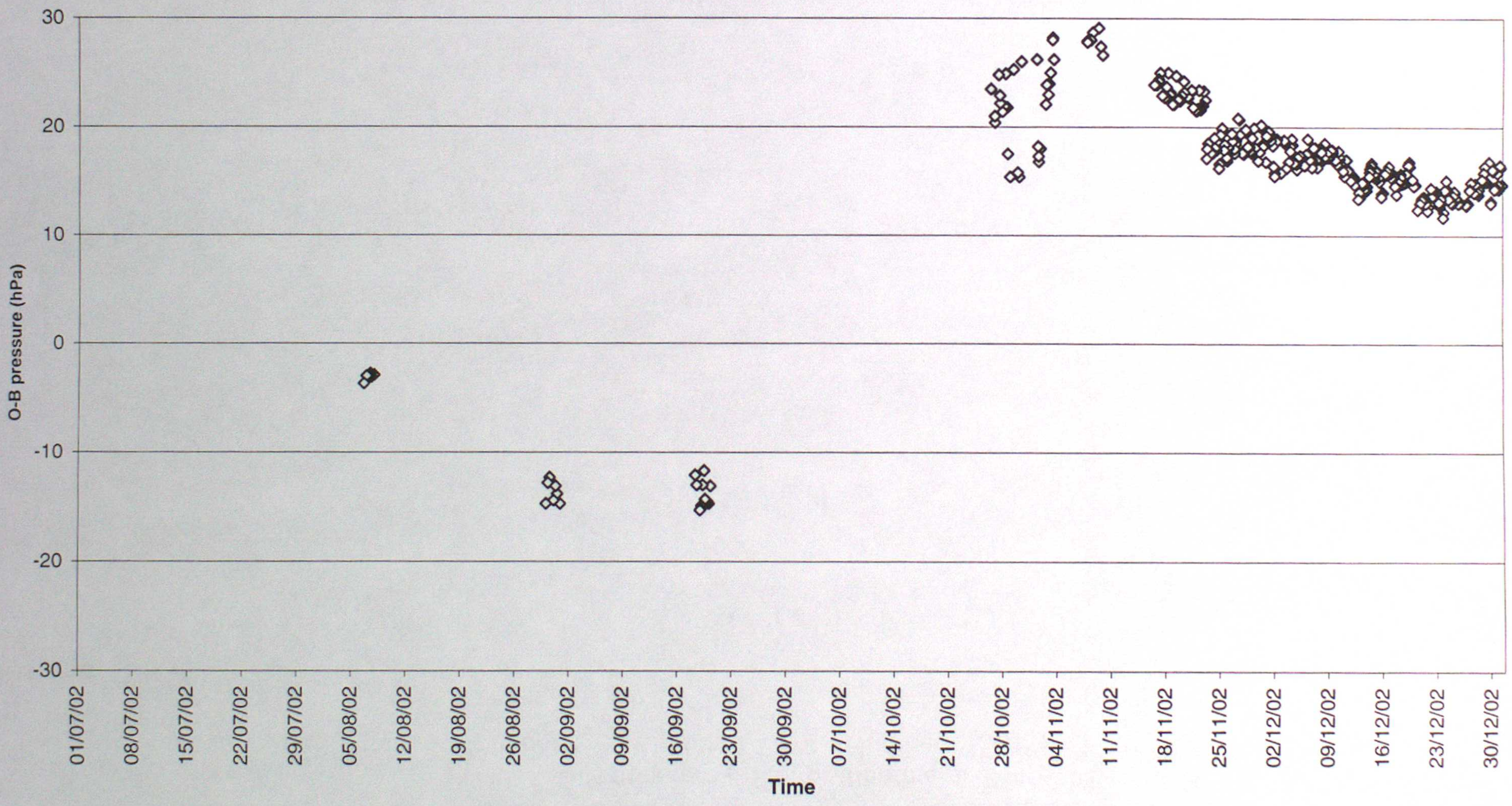
O-B pressure (hPa) for identifier 55907
Number of obs. plotted = 833   Number of outliers = 0

O-B pressure (hPa) for identifier 56554

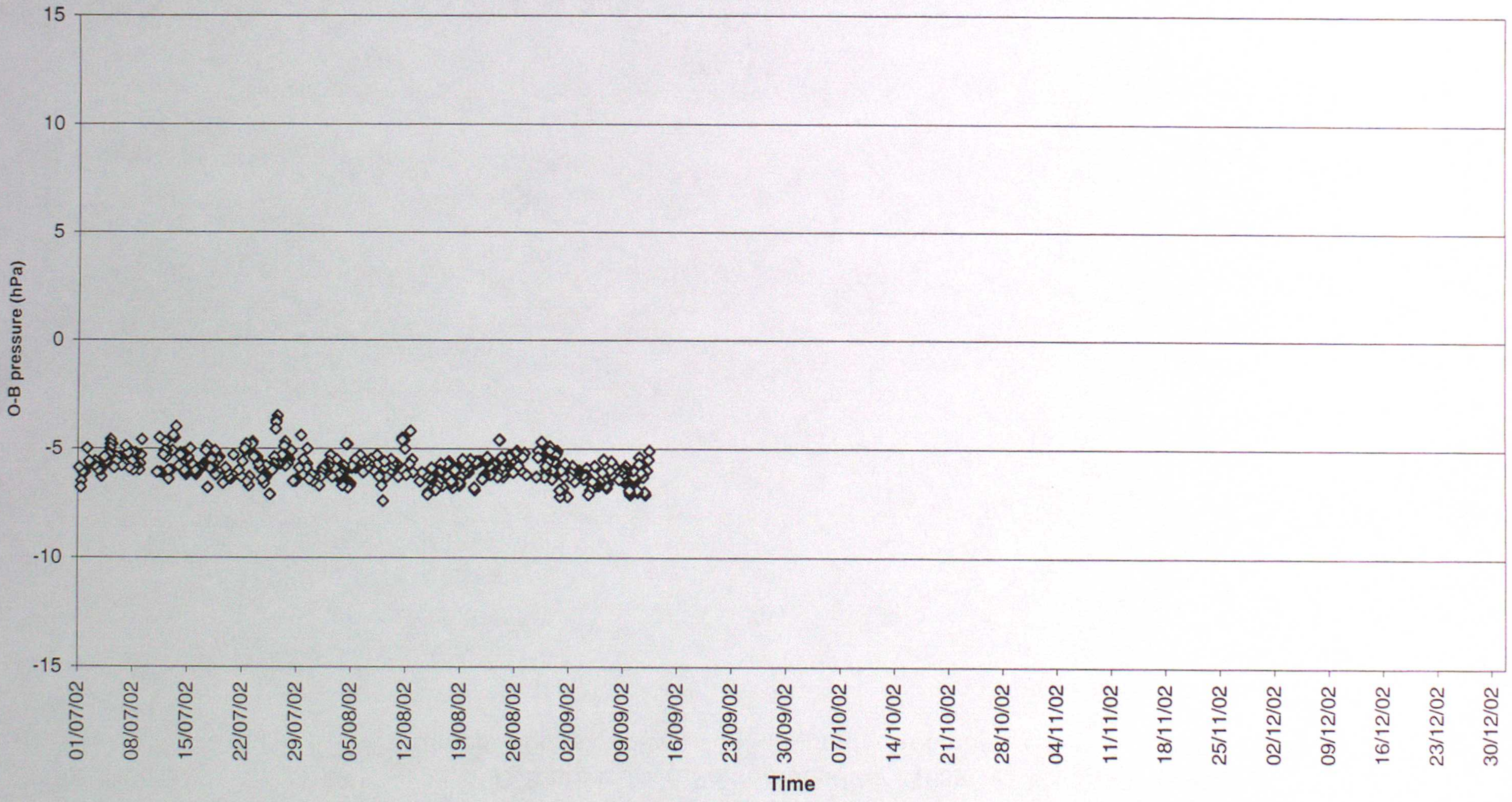
Number of obs. plotted = 3001   Number of outliers = 0



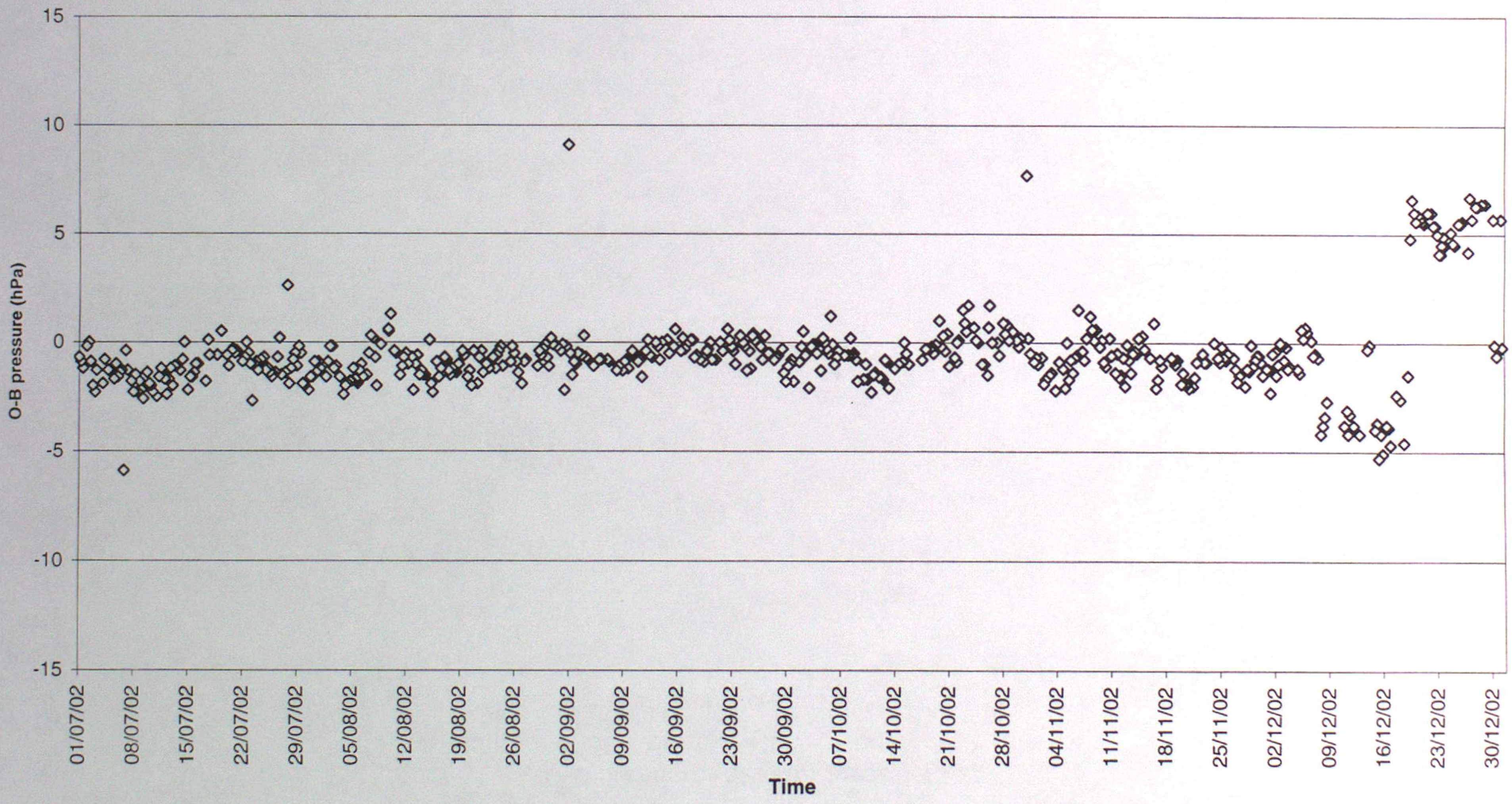
O-B pressure (hPa) for identifier 61532
Number of obs. plotted = 345   Number of outliers = 0

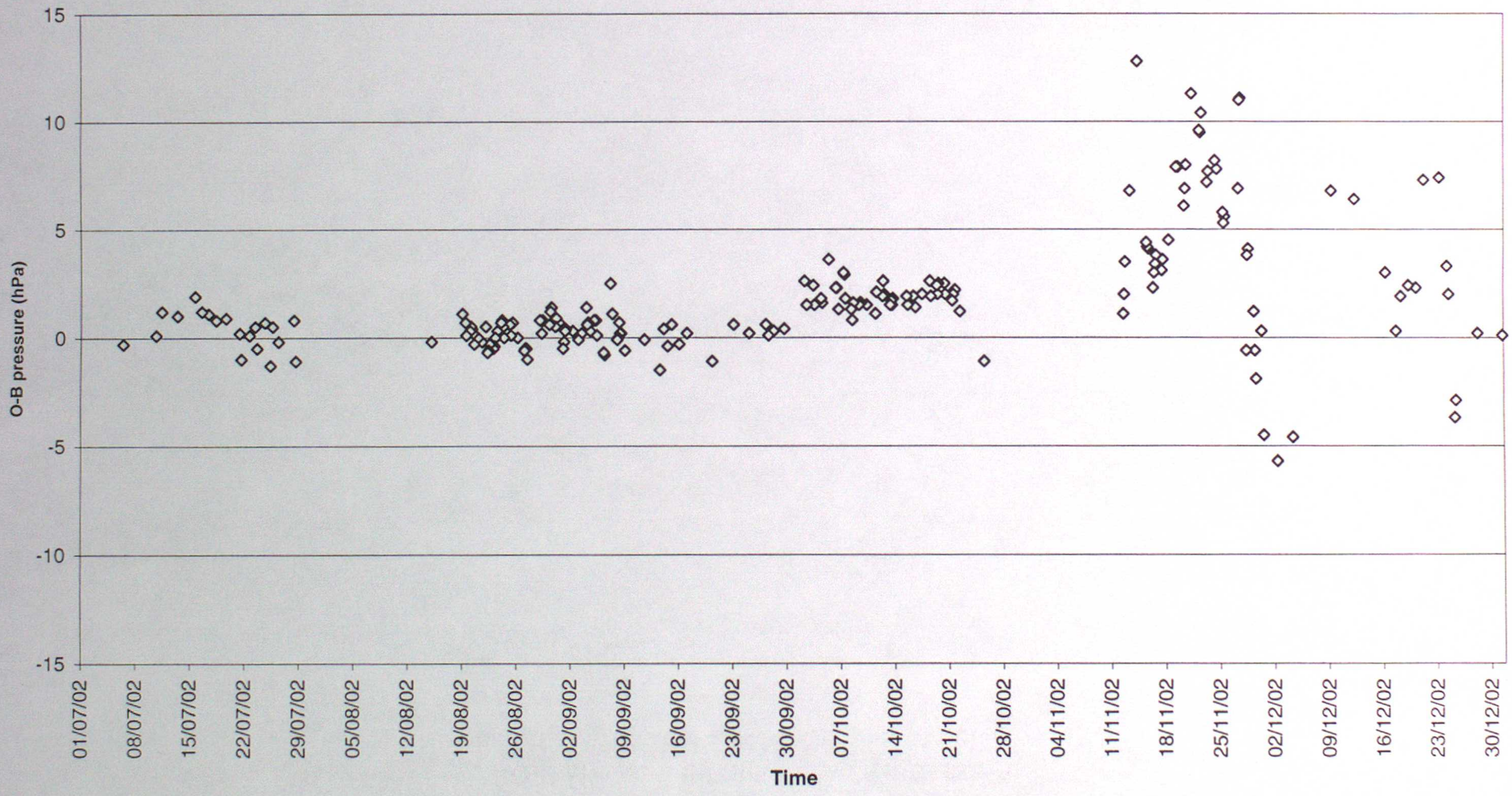


O-B pressure (hPa) for identifier 61664
Number of obs. plotted = 473   Number of outliers = 0

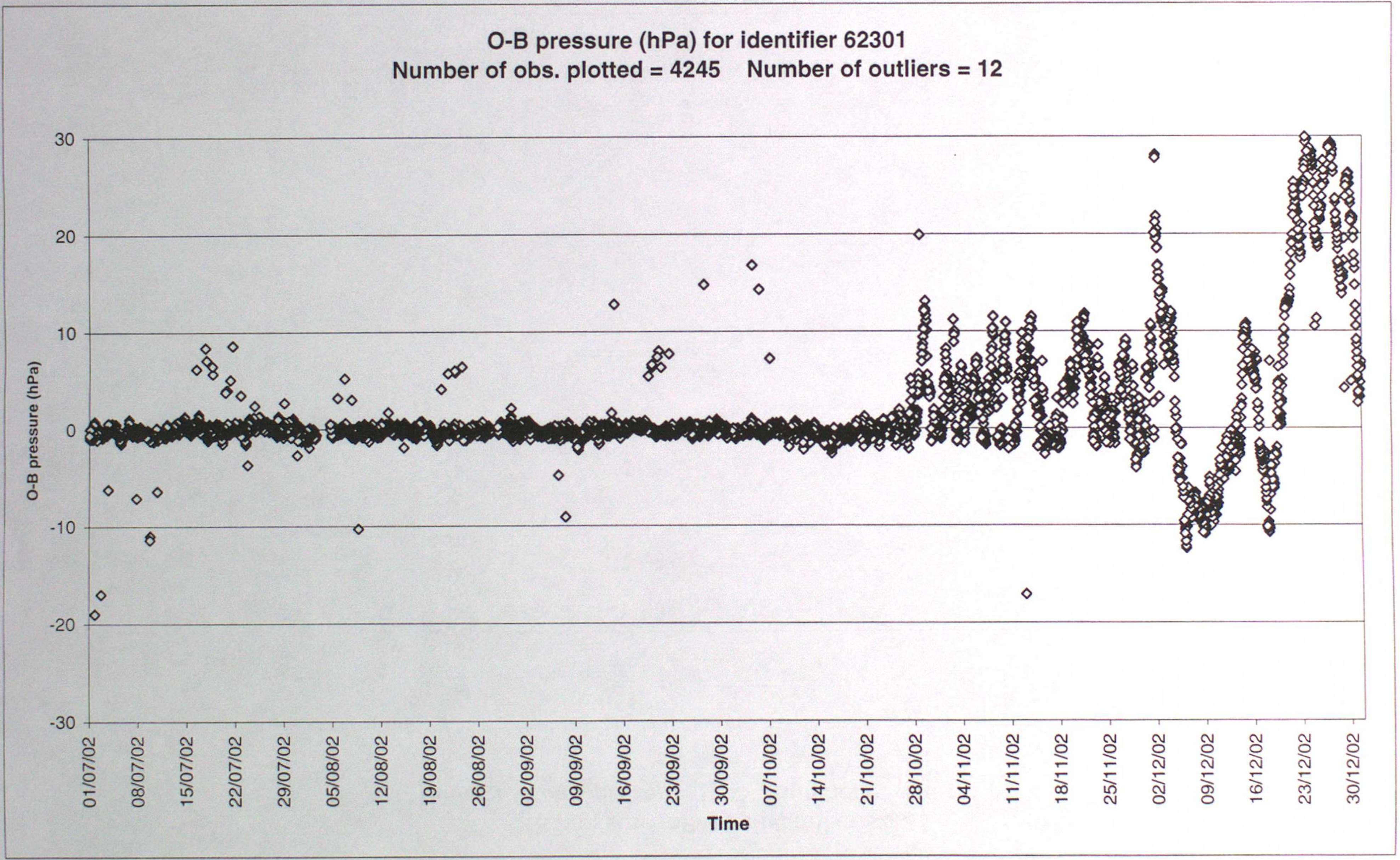


O-B pressure (hPa) for identifier 62138
Number of obs. plotted = 549   Number of outliers = 4

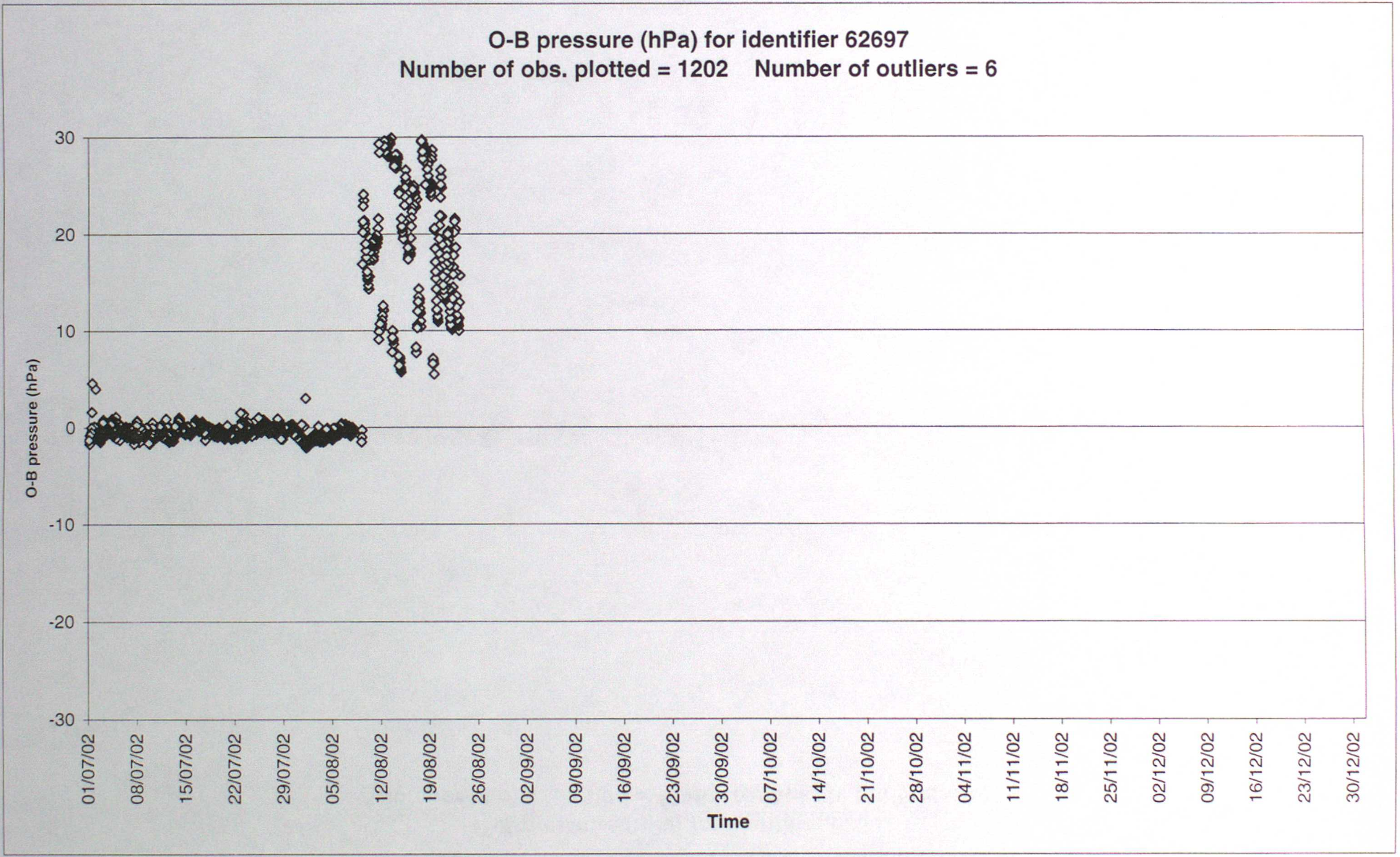


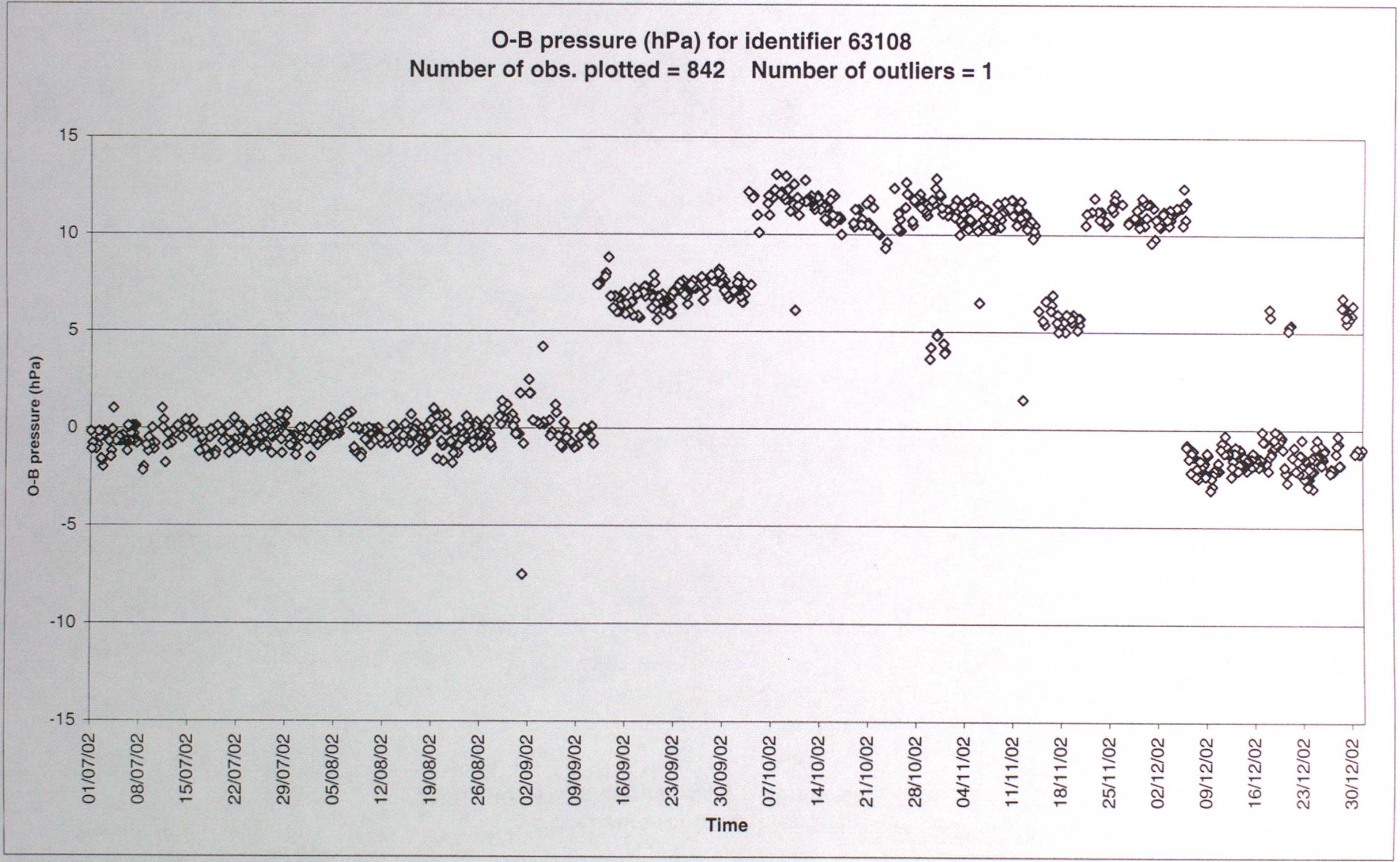


O-B pressure (hPa) for identifier 62143
Number of obs. plotted = 203   Number of outliers = 1

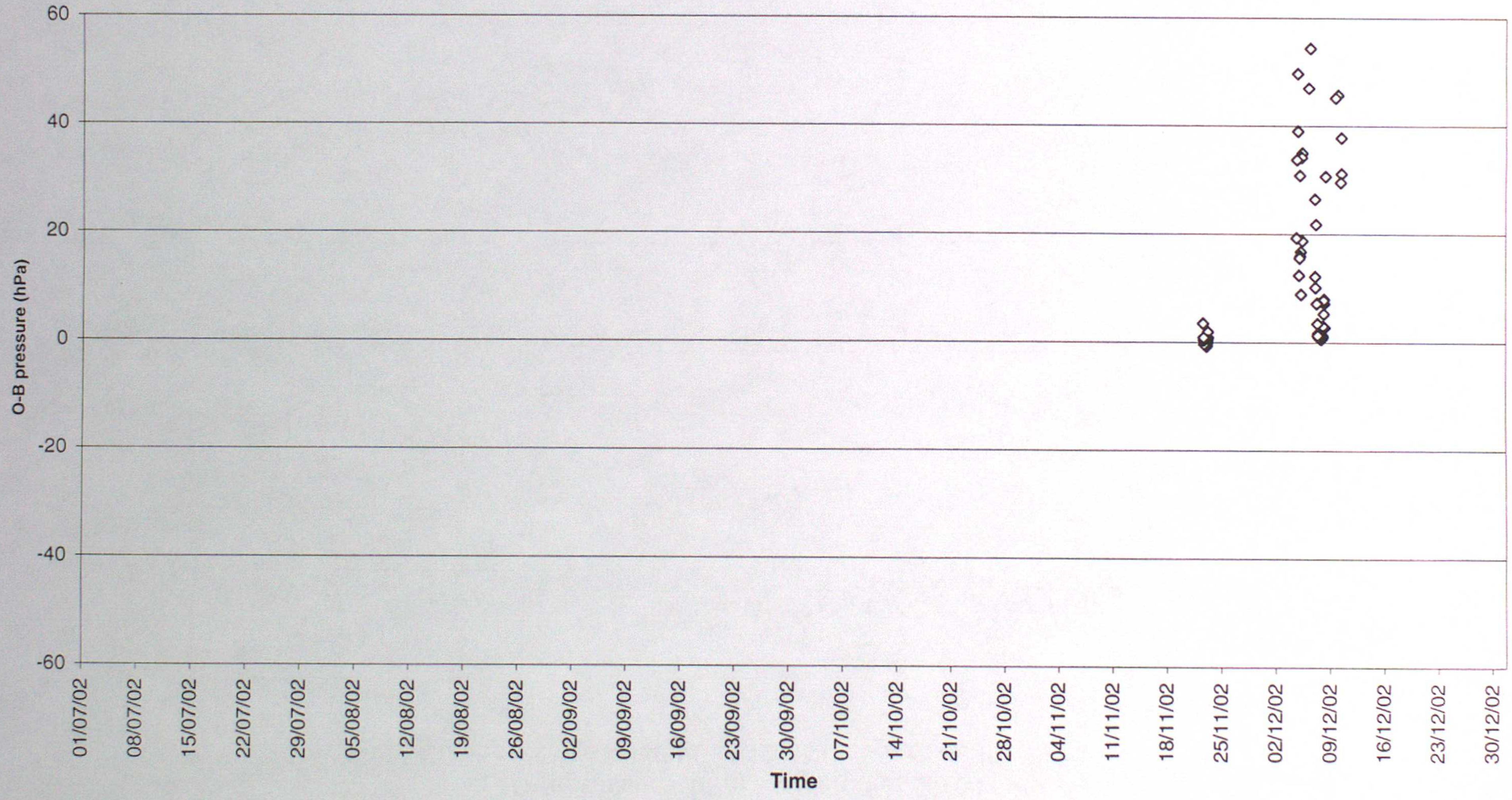


O-B pressure (hPa) for identifier 62301
Number of obs. plotted = 4245   Number of outliers = 12

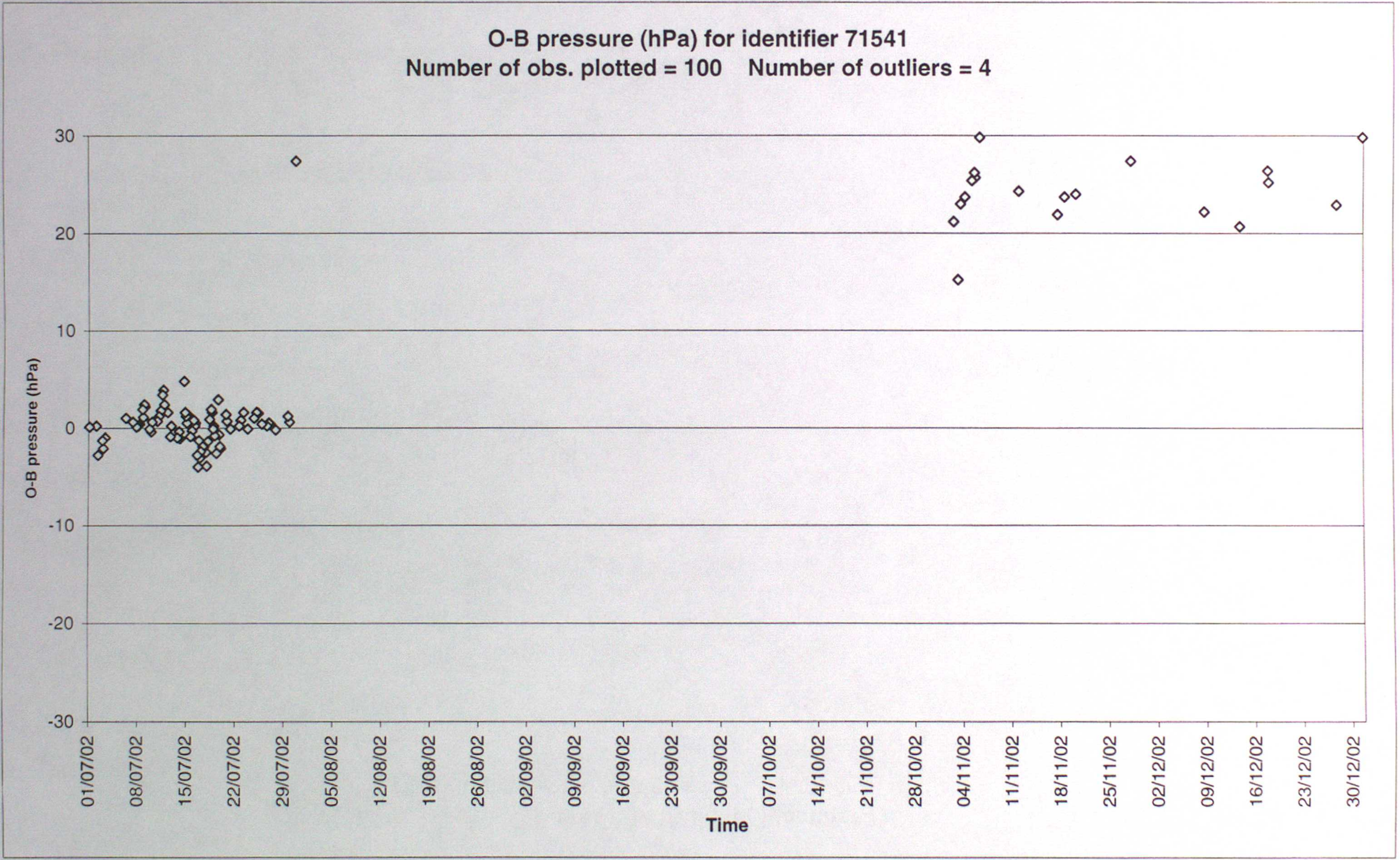

O-B pressure (hPa) for identifier 62697
Number of obs. plotted = 1202   Number of outliers = 6
O-B pressure (hPa)
30
20
10
0
-10
-20
-30
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

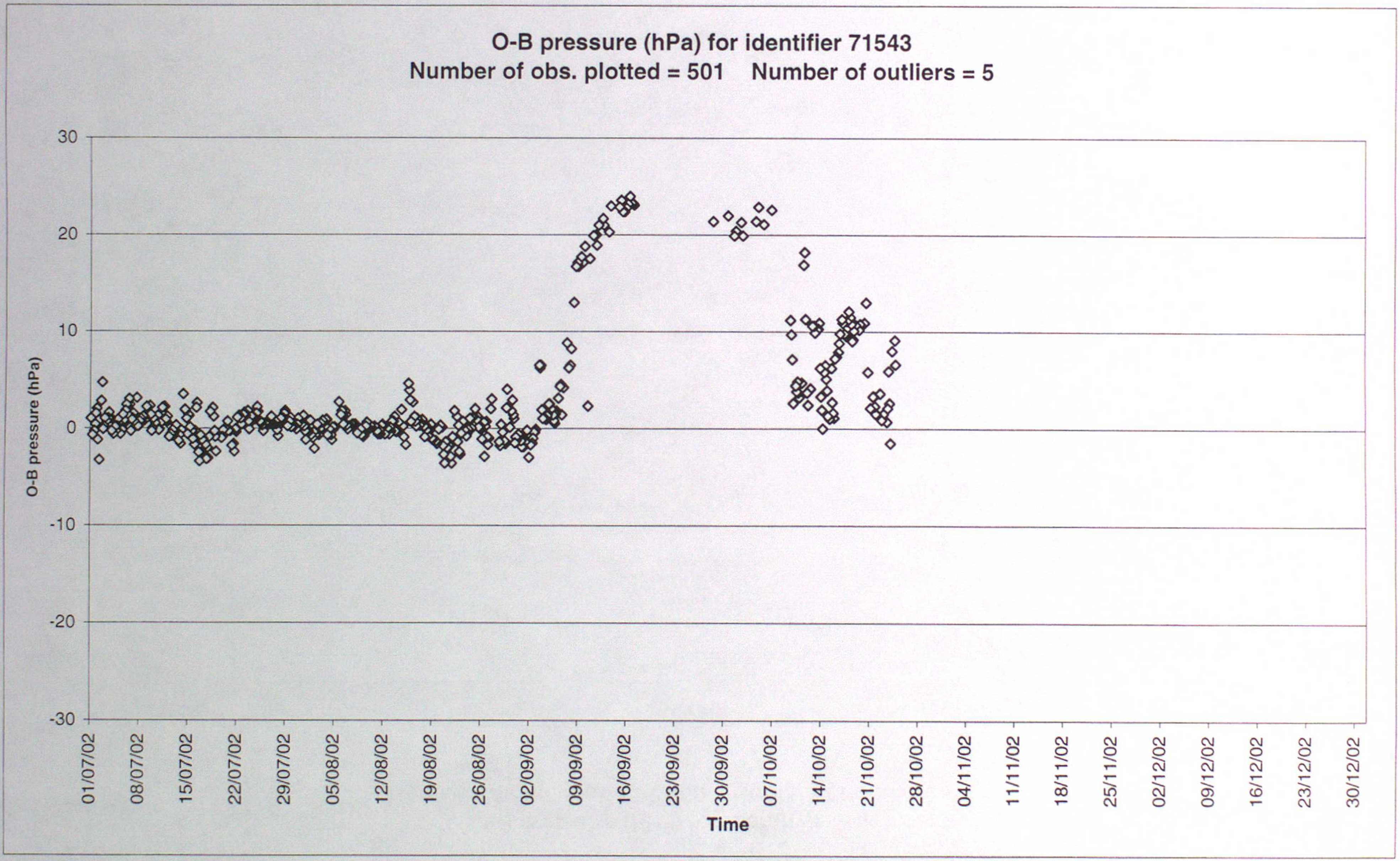


O-B pressure (hPa) for identifier 63108
Number of obs. plotted = 842   Number of outliers = 1

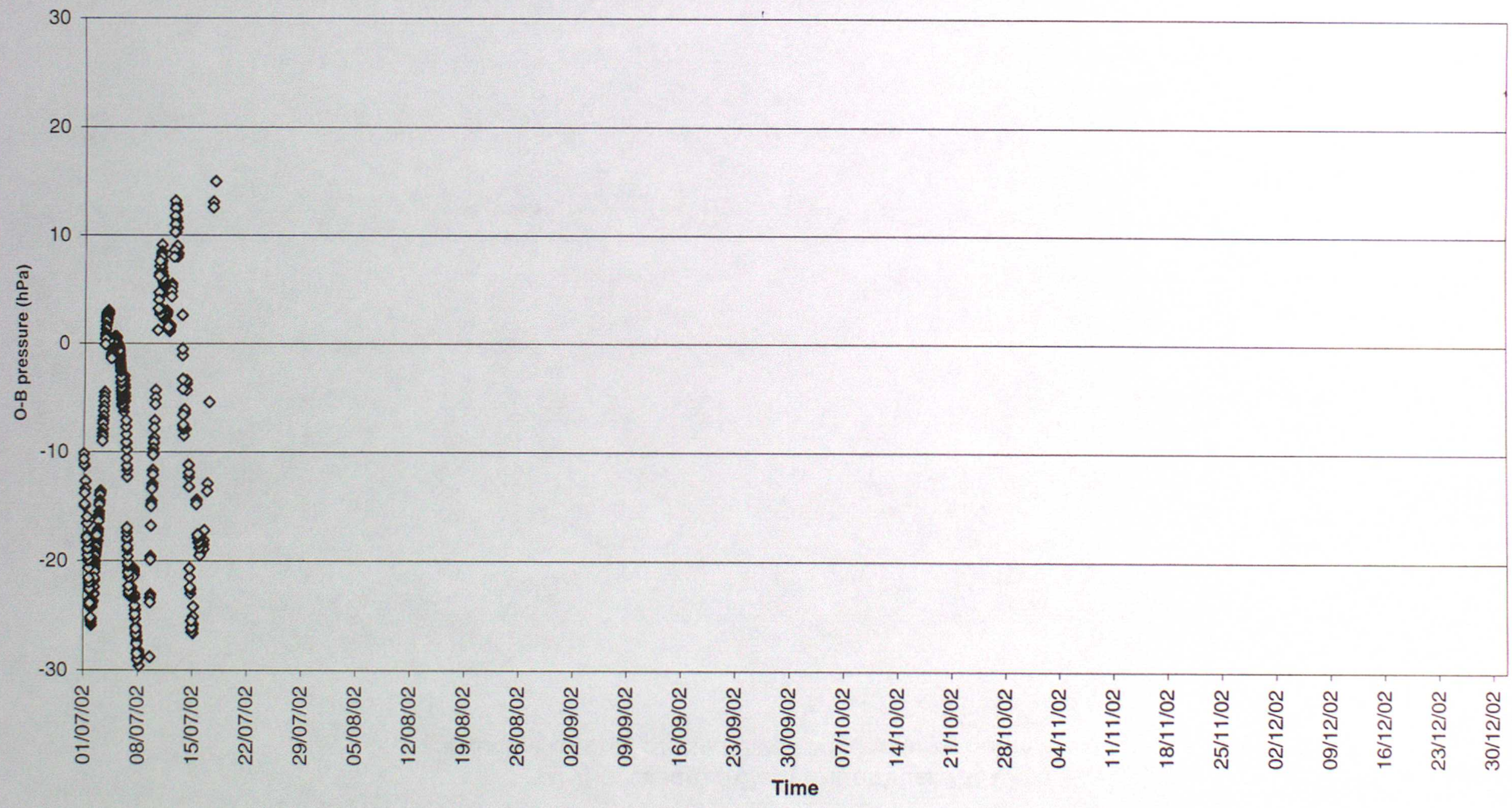


O-B pressure (hPa) for identifier 64606
Number of obs. plotted = 68   Number of outliers = 4

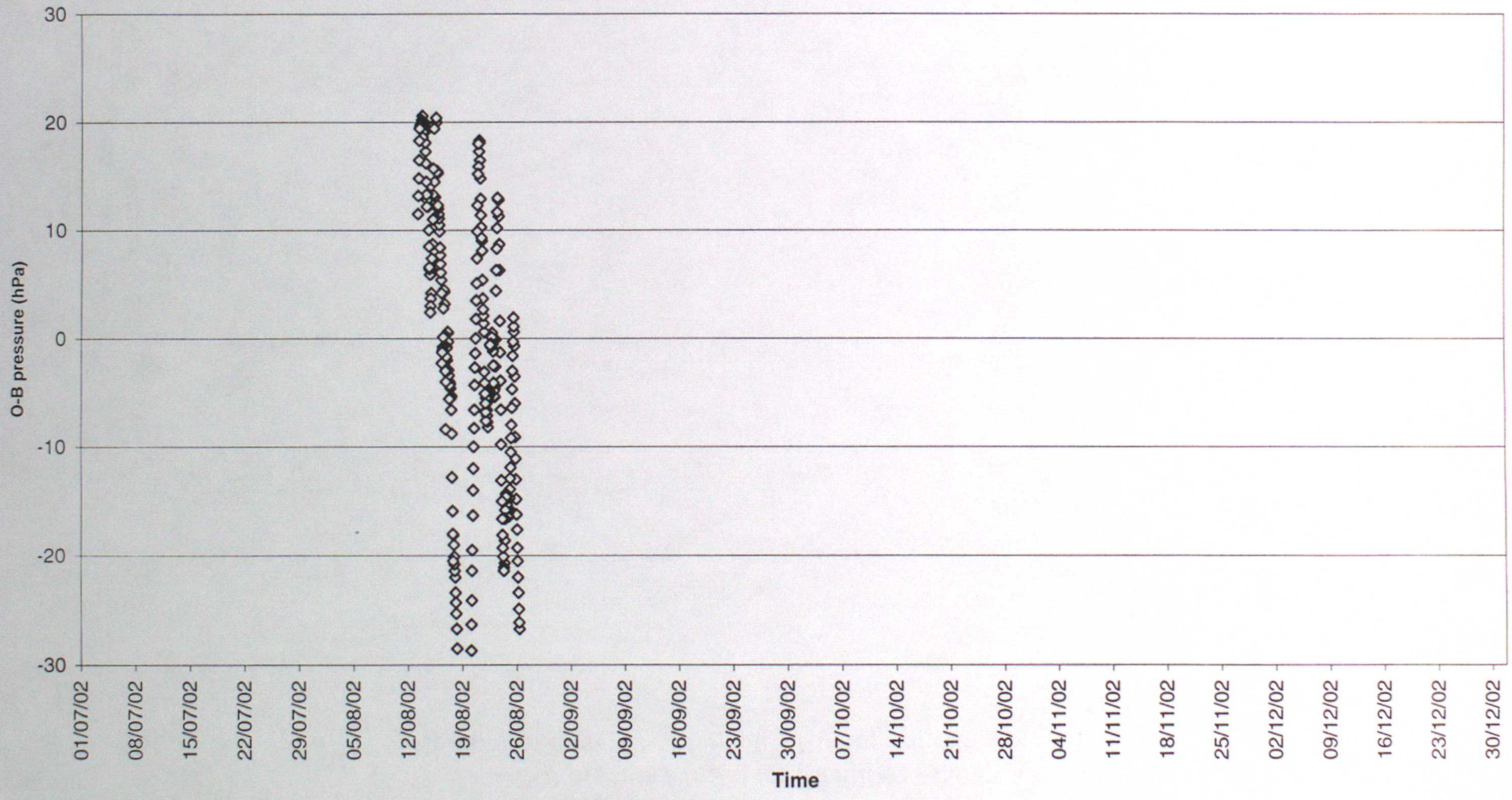

O-B pressure (hPa) for identifier 71541
Number of obs. plotted = 100   Number of outliers = 4


O-B pressure (hPa) for identifier 71543
Number of obs. plotted = 501   Number of outliers = 5
O-B pressure (hPa)
30
20
10
0
-10
-20
-30
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

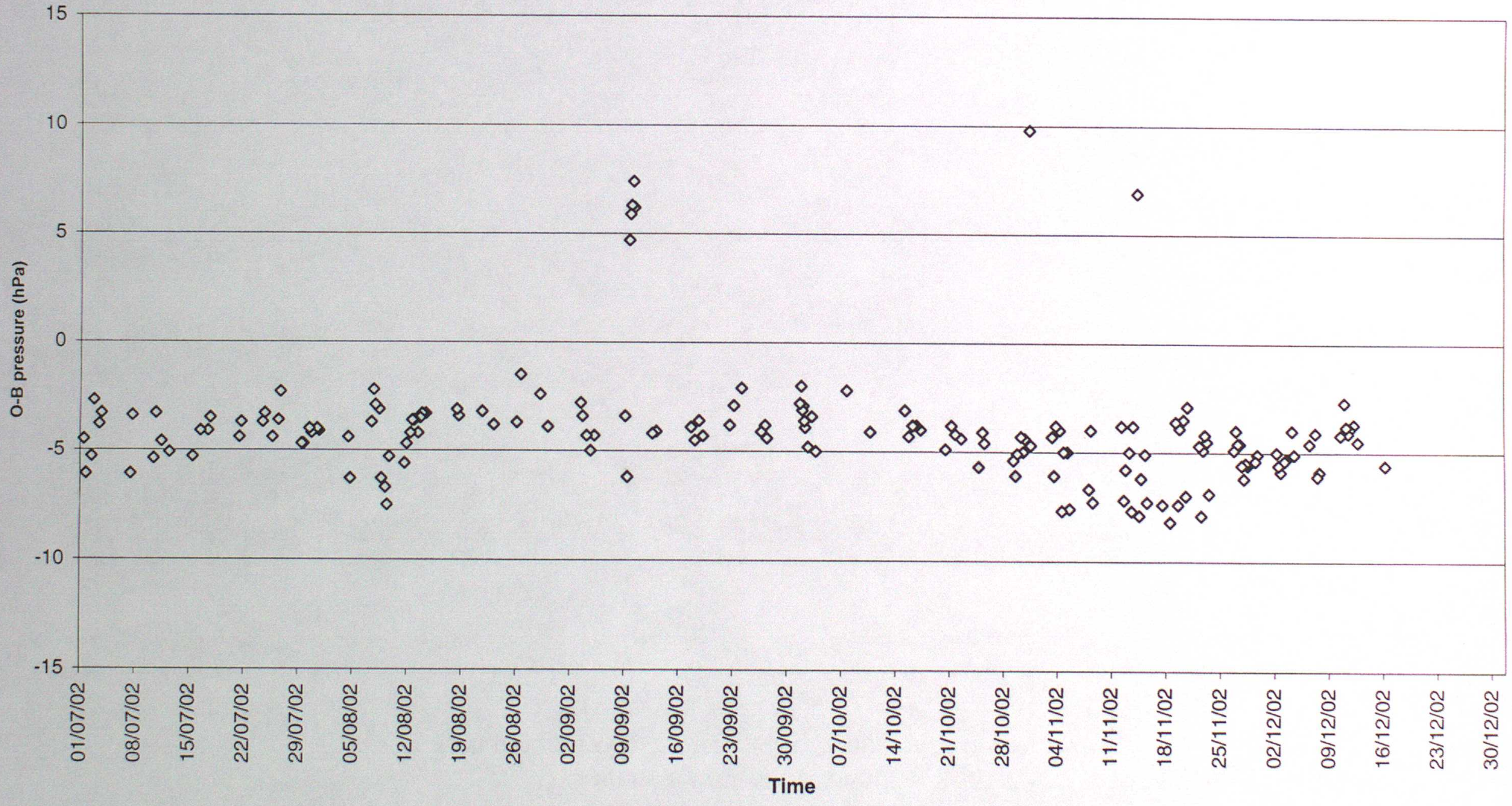
O-B pressure (hPa) for identifier 71566
Number of obs. plotted = 450   Number of outliers = 43

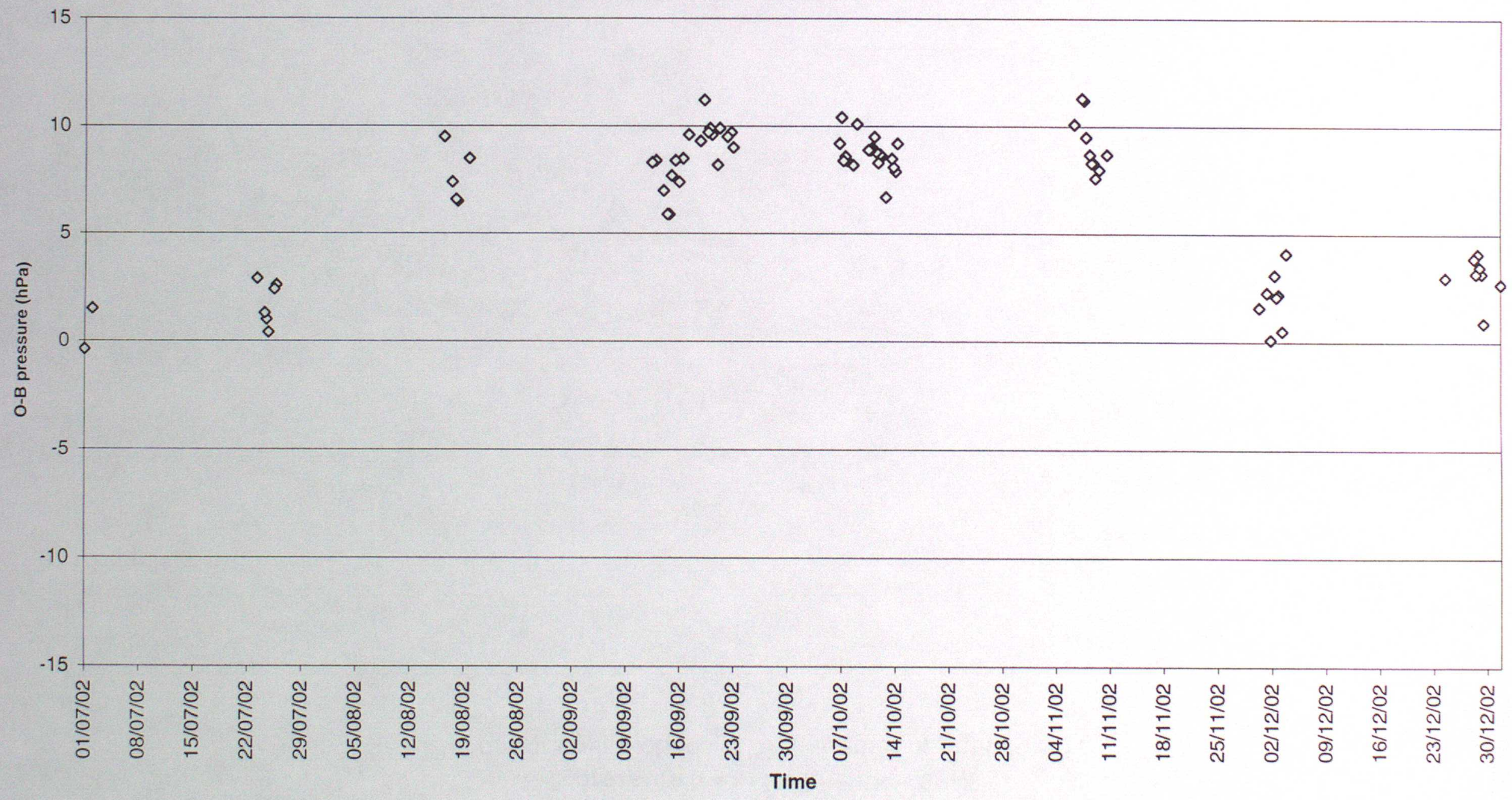


O-B pressure (hPa) for identifier 74519
Number of obs. plotted = 267   Number of outliers = 42

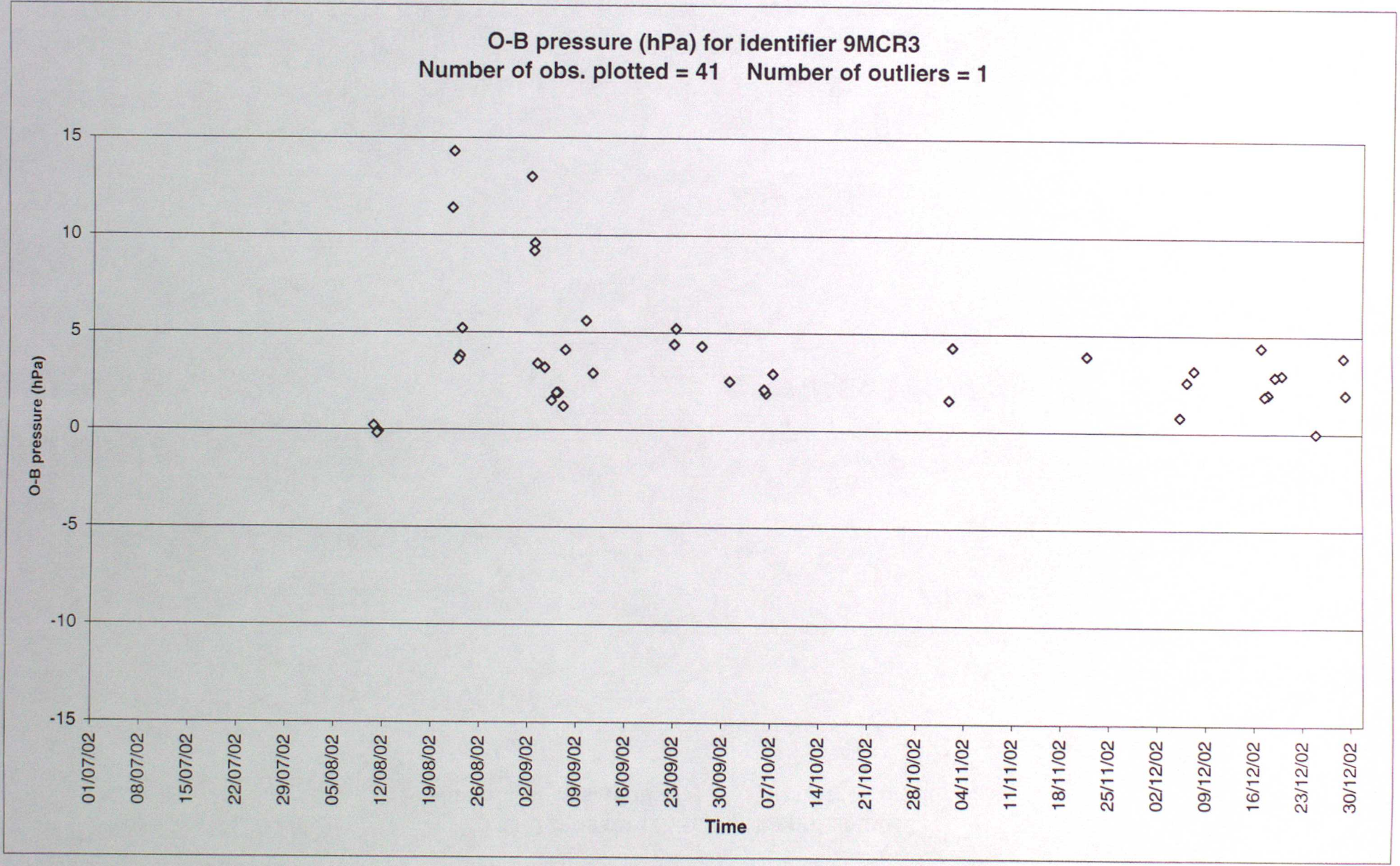


O-B pressure (hPa) for identifier 8PNI
Number of obs. plotted = 176   Number of outliers = 1

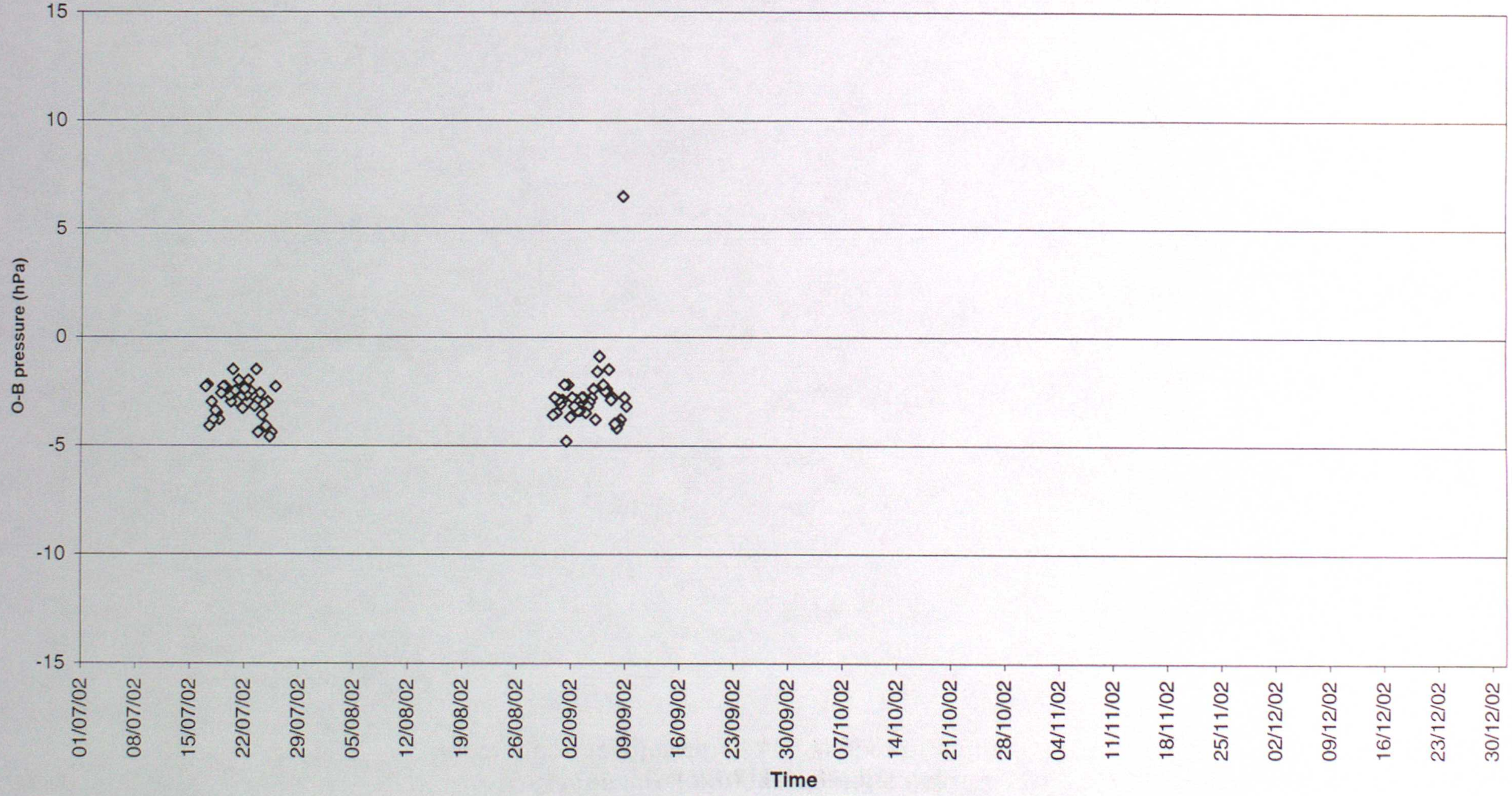




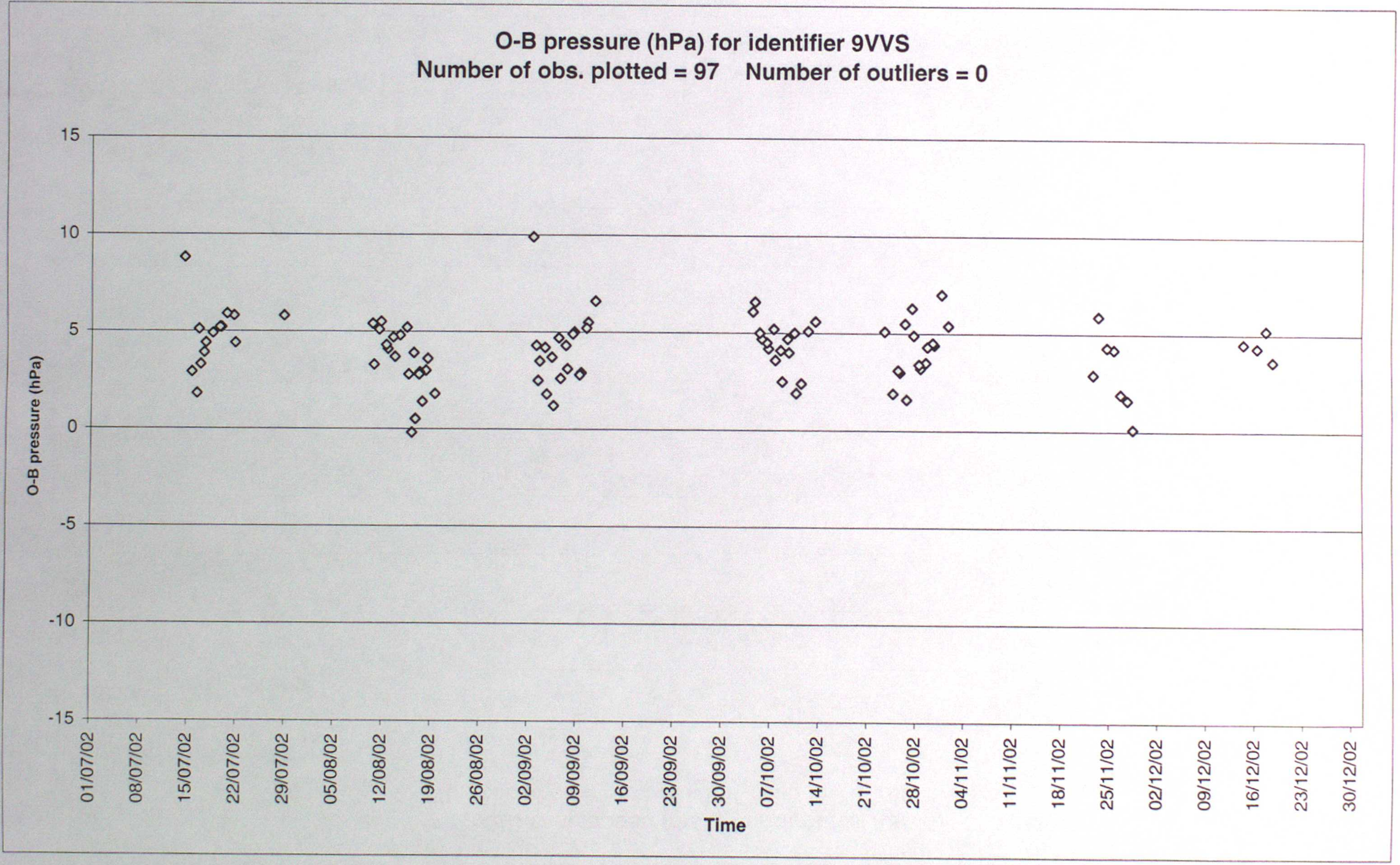
O-B pressure (hPa) for identifier 9HER7
Number of obs. plotted = 79   Number of outliers = 1



O-B pressure (hPa) for identifier 9MCR3
Number of obs. plotted = 41   Number of outliers = 1

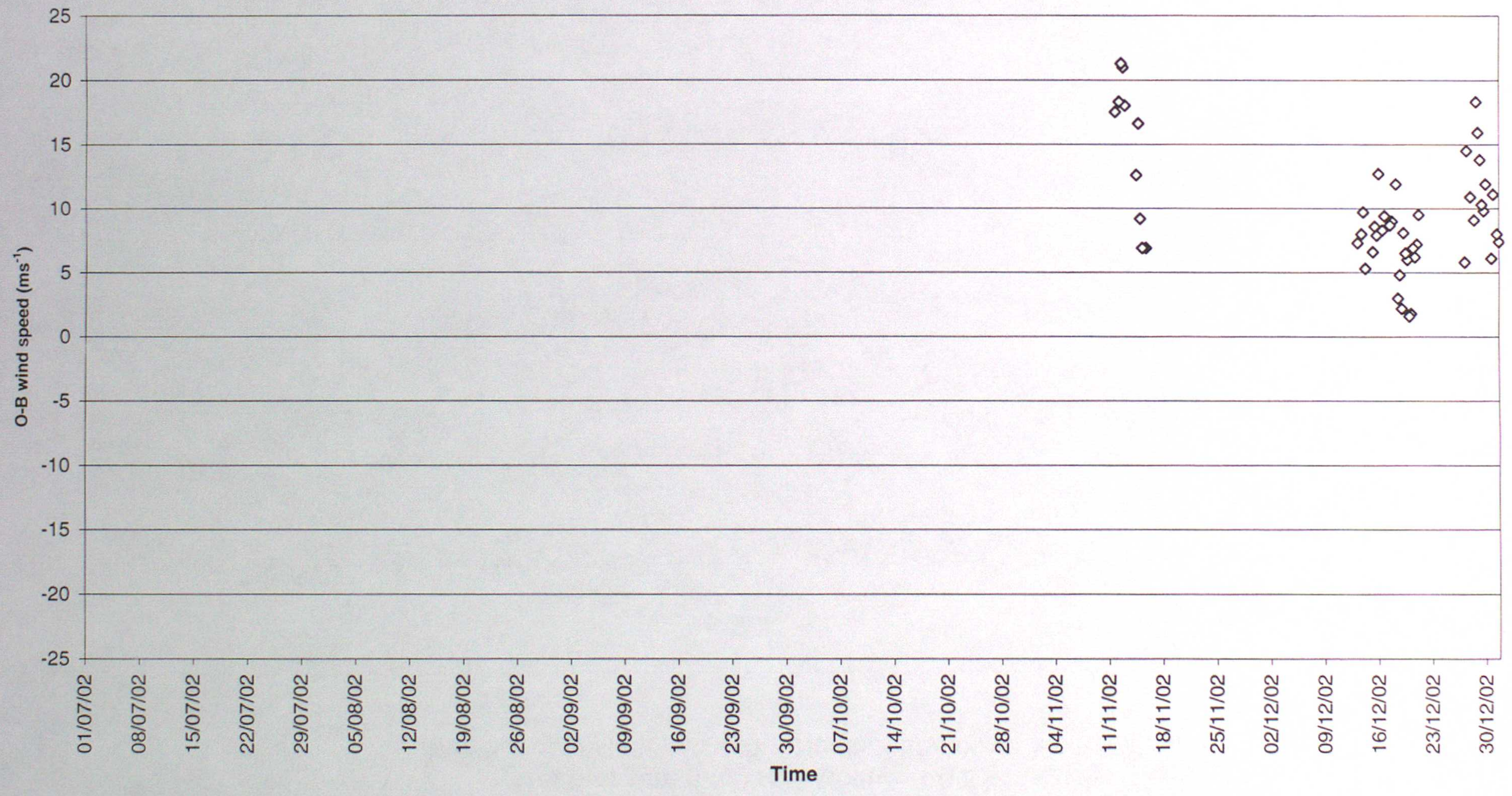

O-B pressure (hPa) for identifier 9VHZ2

Number of obs. plotted = 74   Number of outliers = 0

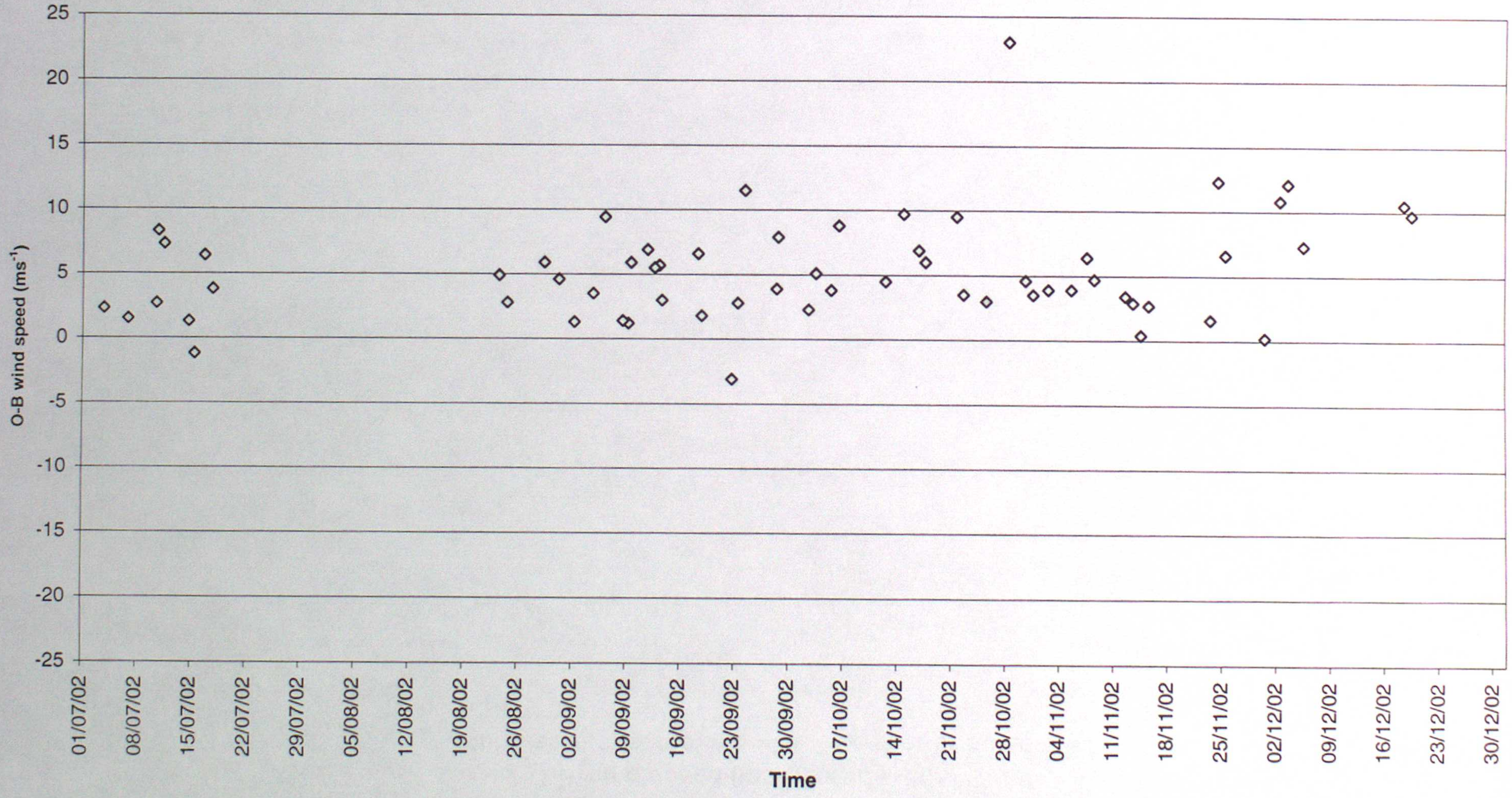


O-B pressure (hPa) for identifier 9VVS
Number of obs. plotted = 97   Number of outliers = 0

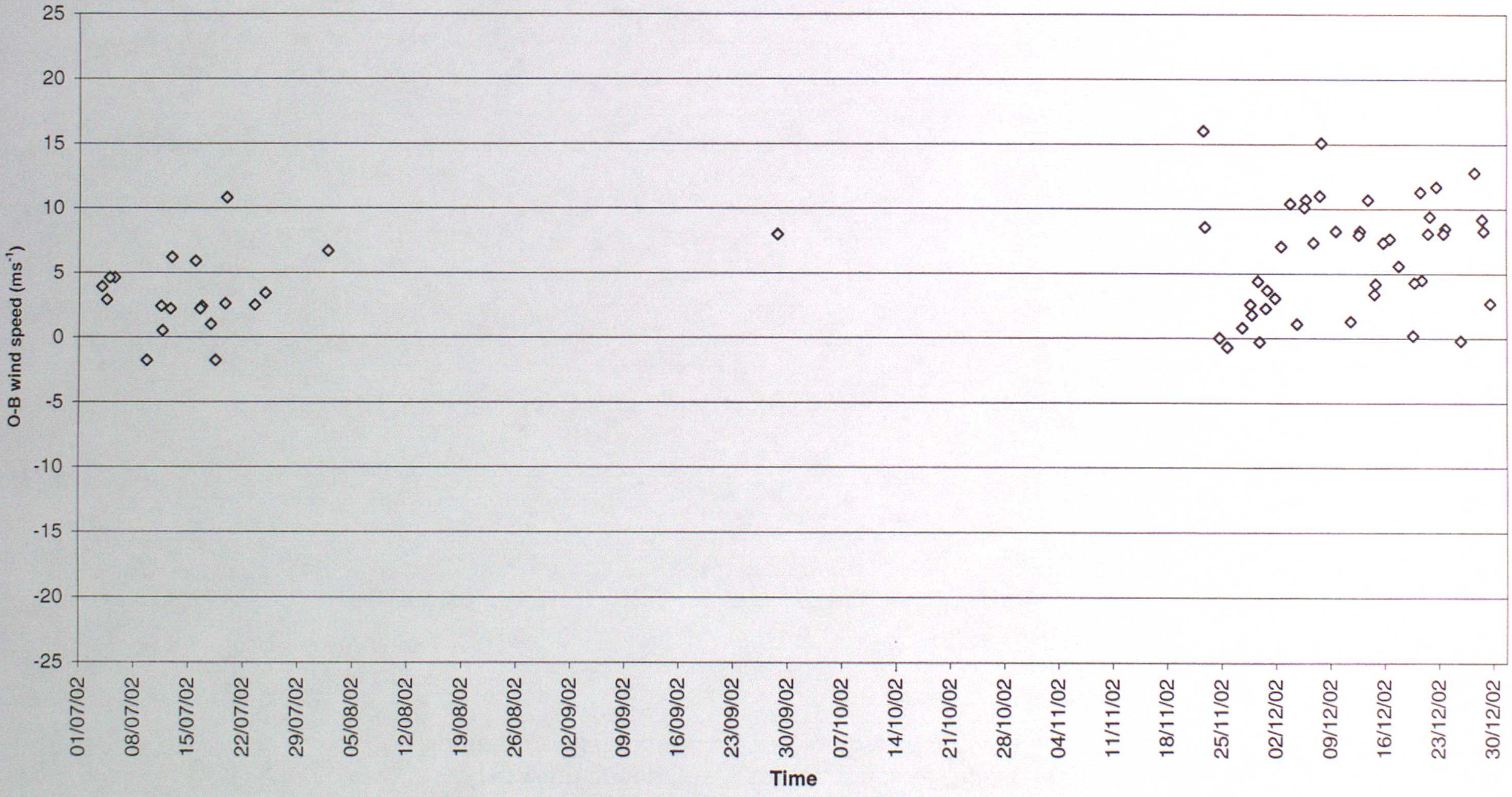
O-B wind speed (ms^{-1}) for identifier A8AM7
Number of obs. plotted = 50   Number of outliers = 0

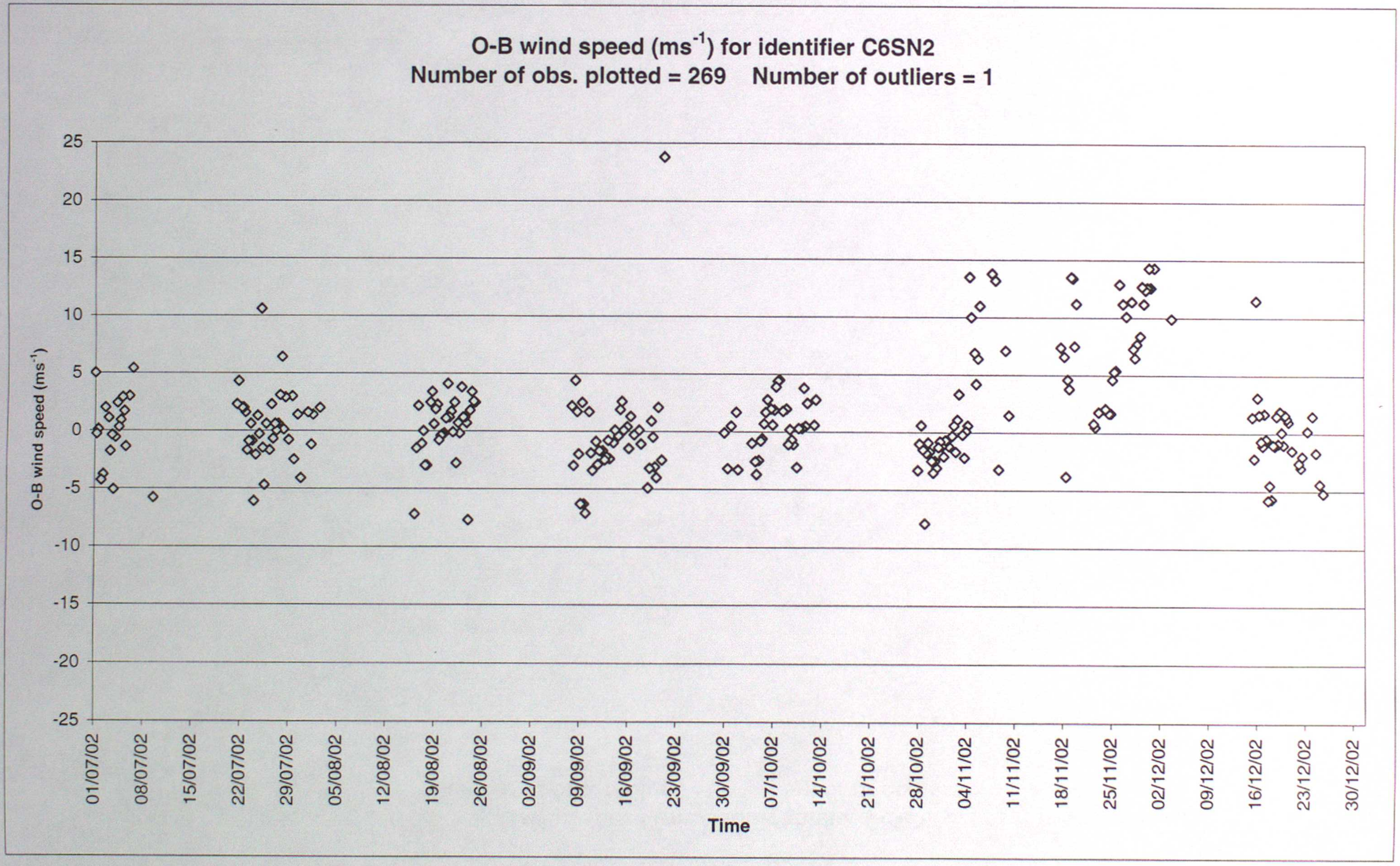


O-B wind speed (ms^{-1}) for identifier CFD6824
Number of obs. plotted = 61   Number of outliers = 0



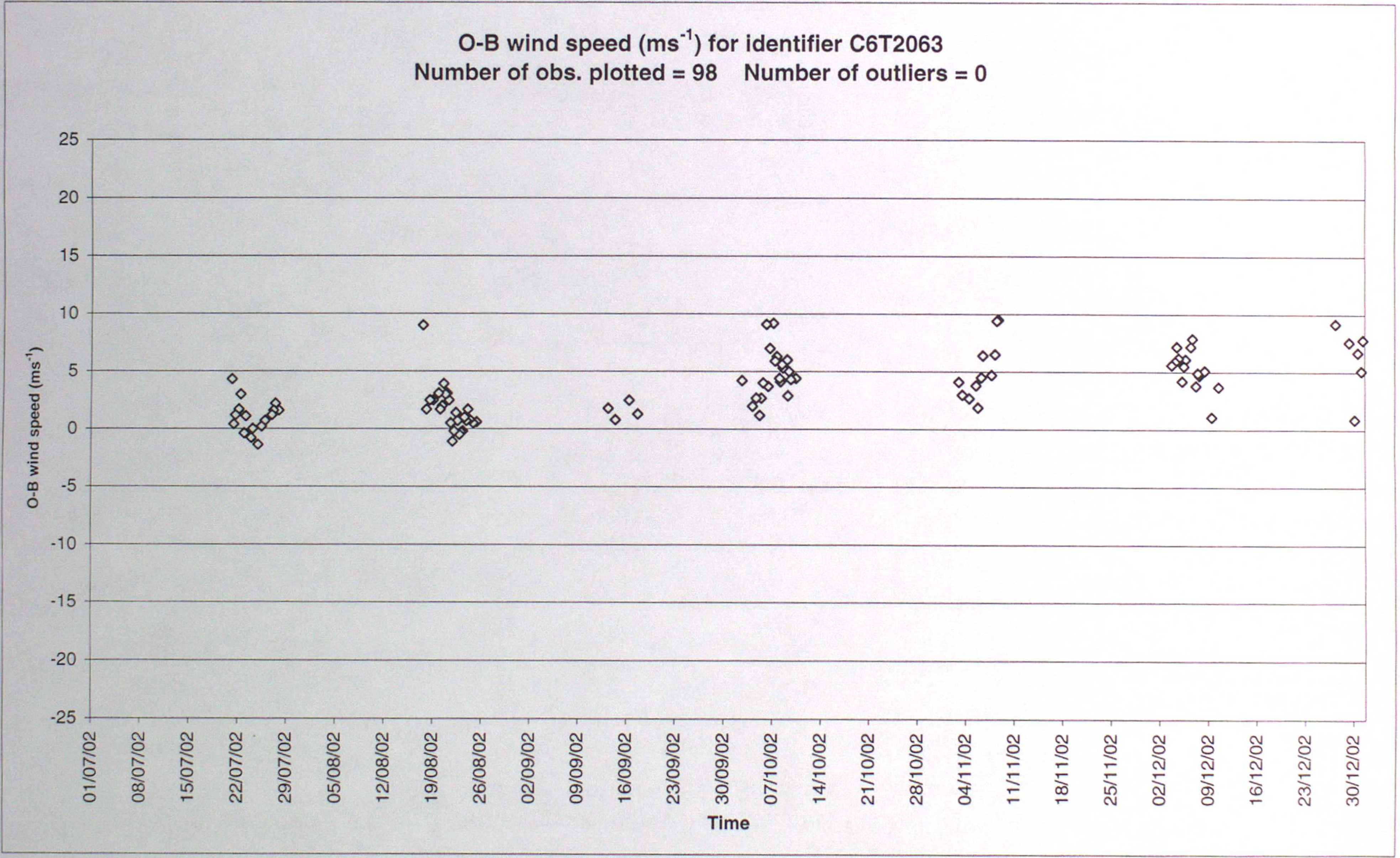
O-B wind speed (ms^{-1}) for identifier CYLY
Number of obs. plotted = 64   Number of outliers = 0





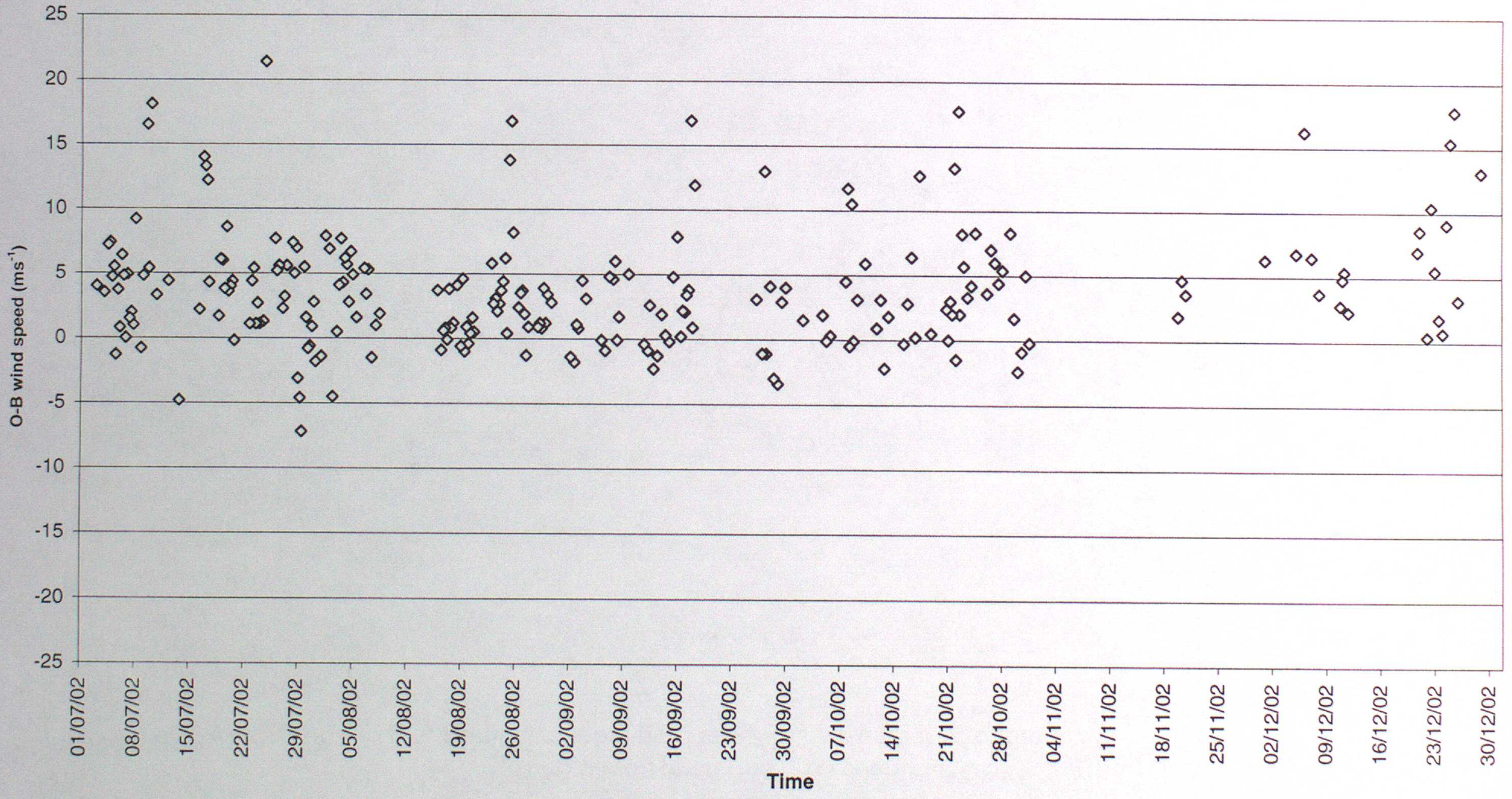
O-B wind speed (ms^{-1}) for identifier C6SN2

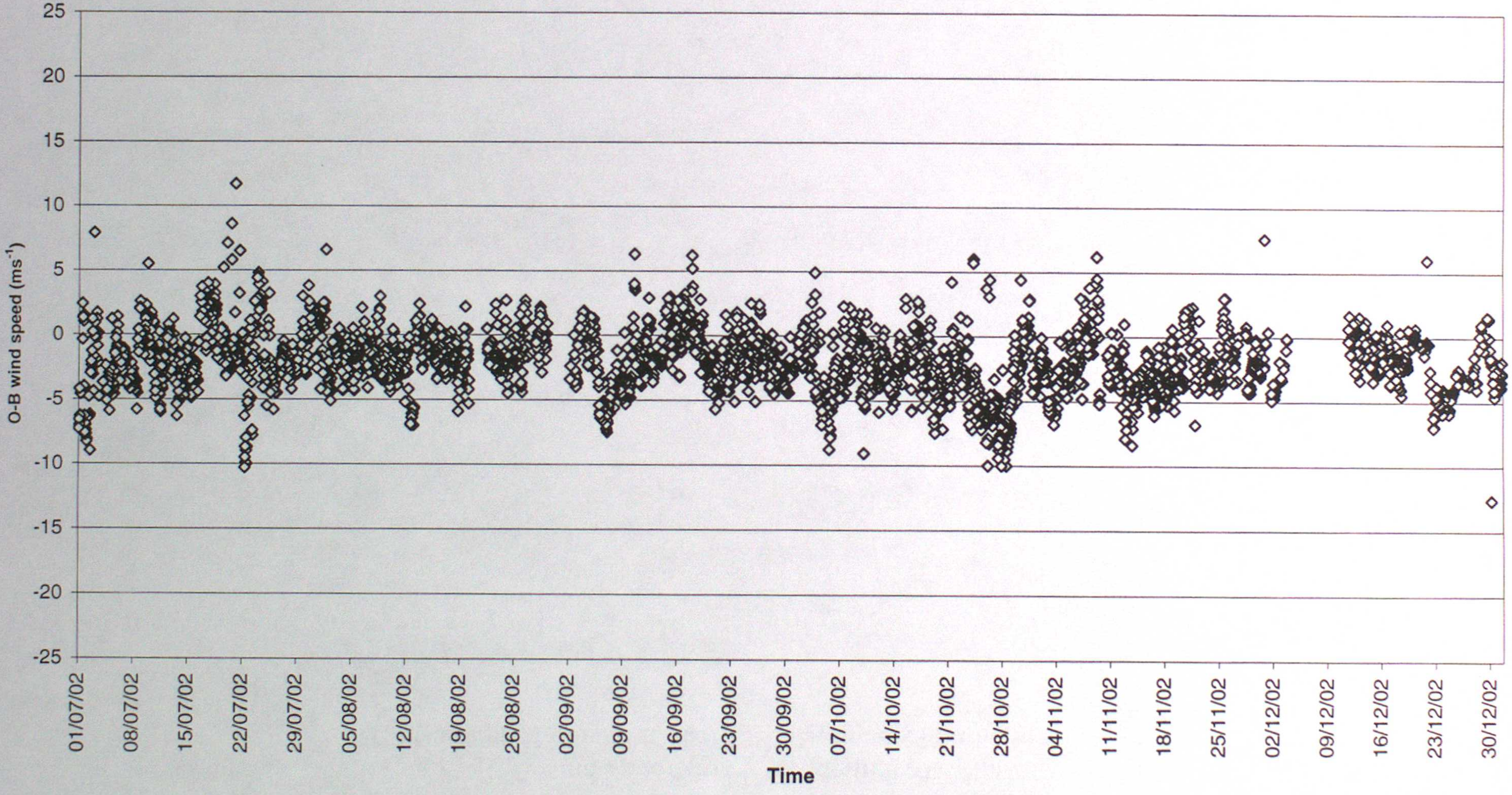
Number of obs. plotted = 269   Number of outliers = 1

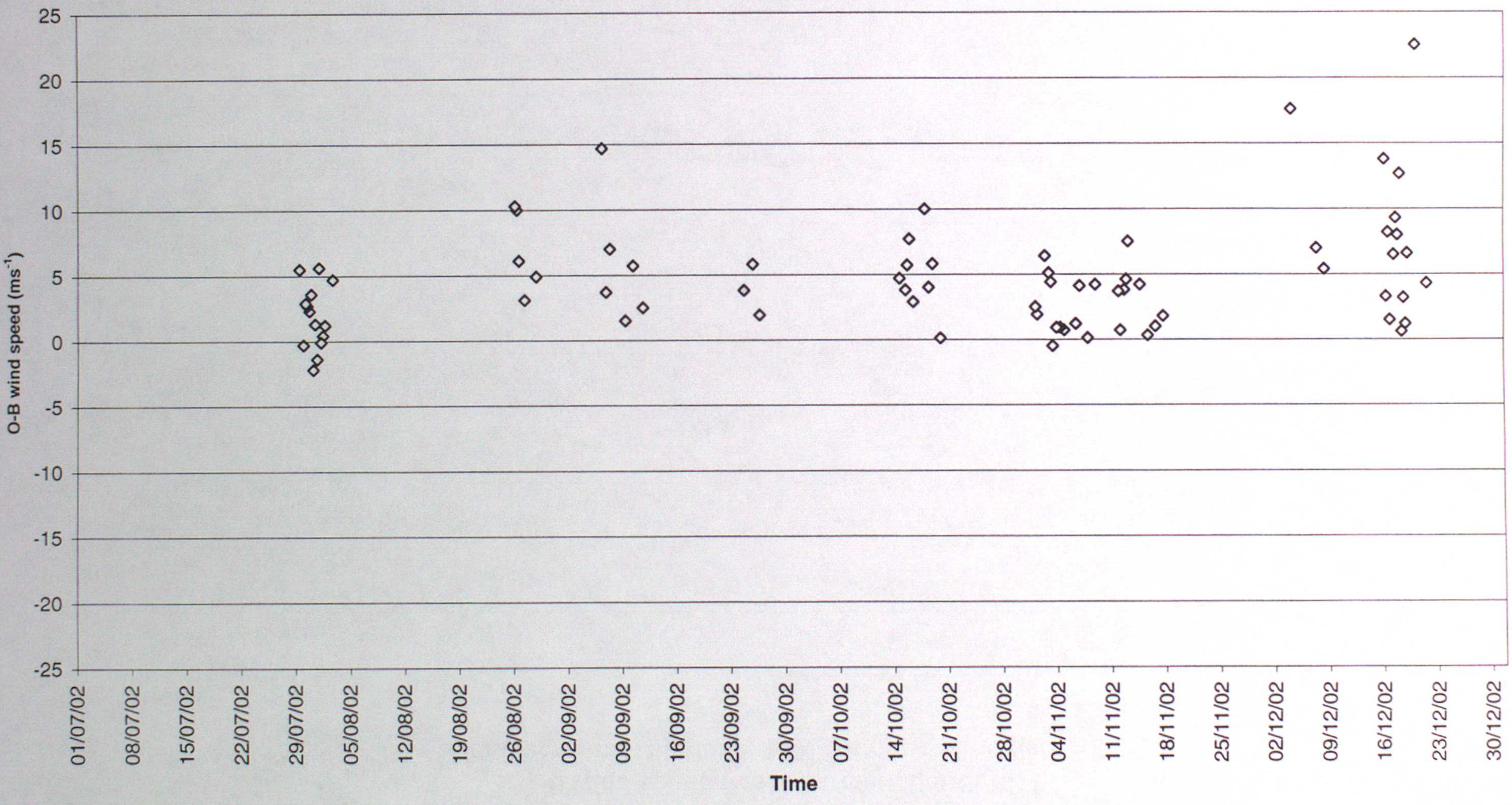


O-B wind speed (ms^{-1}) for identifier C6T2063
Number of obs. plotted = 98   Number of outliers = 0

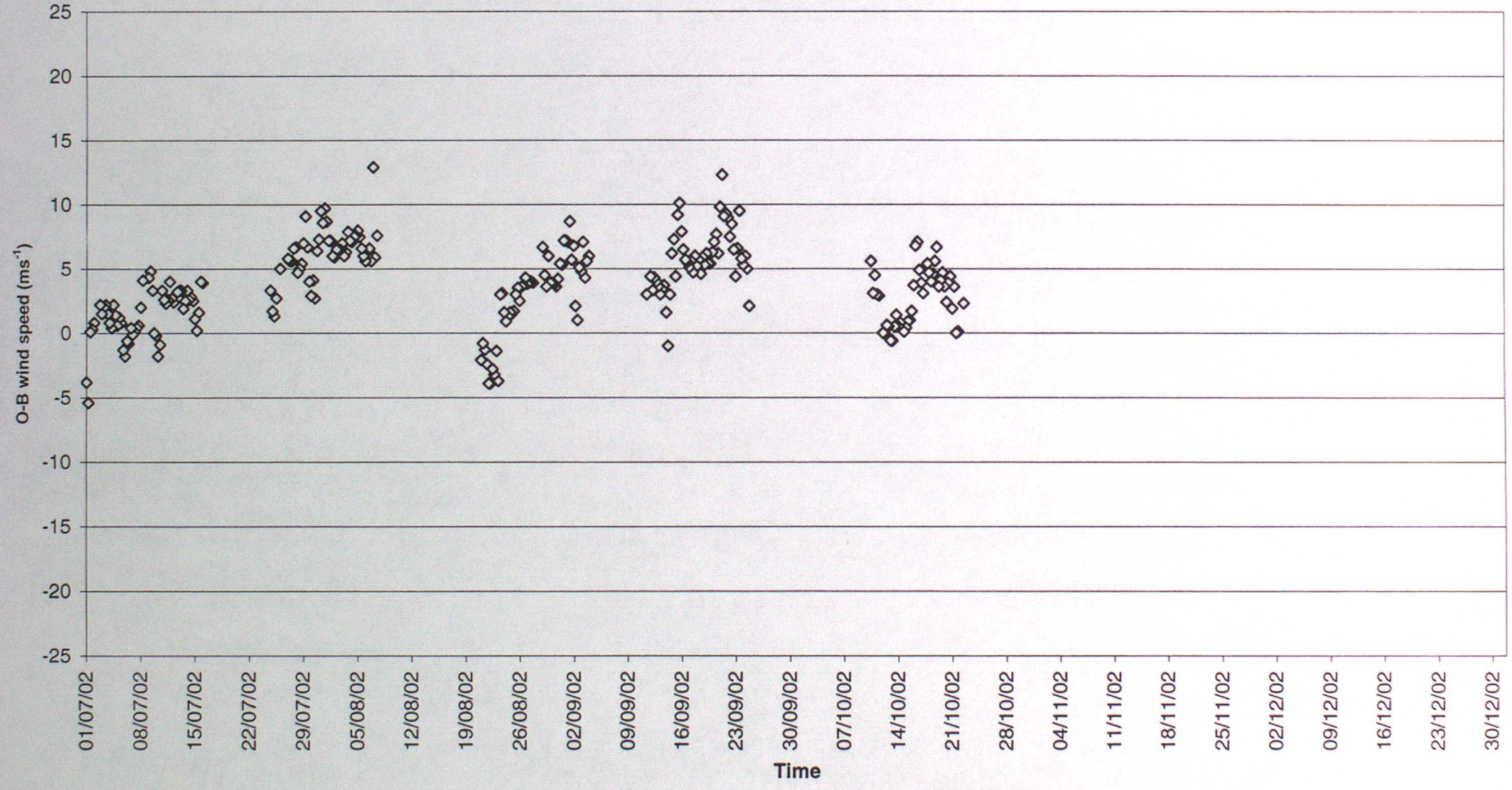
O-B wind speed (ms^{-1}) for identifier DANM
Number of obs. plotted = 238   Number of outliers = 4




O-B wind speed (ms^{-1}) for identifier DBBI
Number of obs. plotted = 3290   Number of outliers = 2



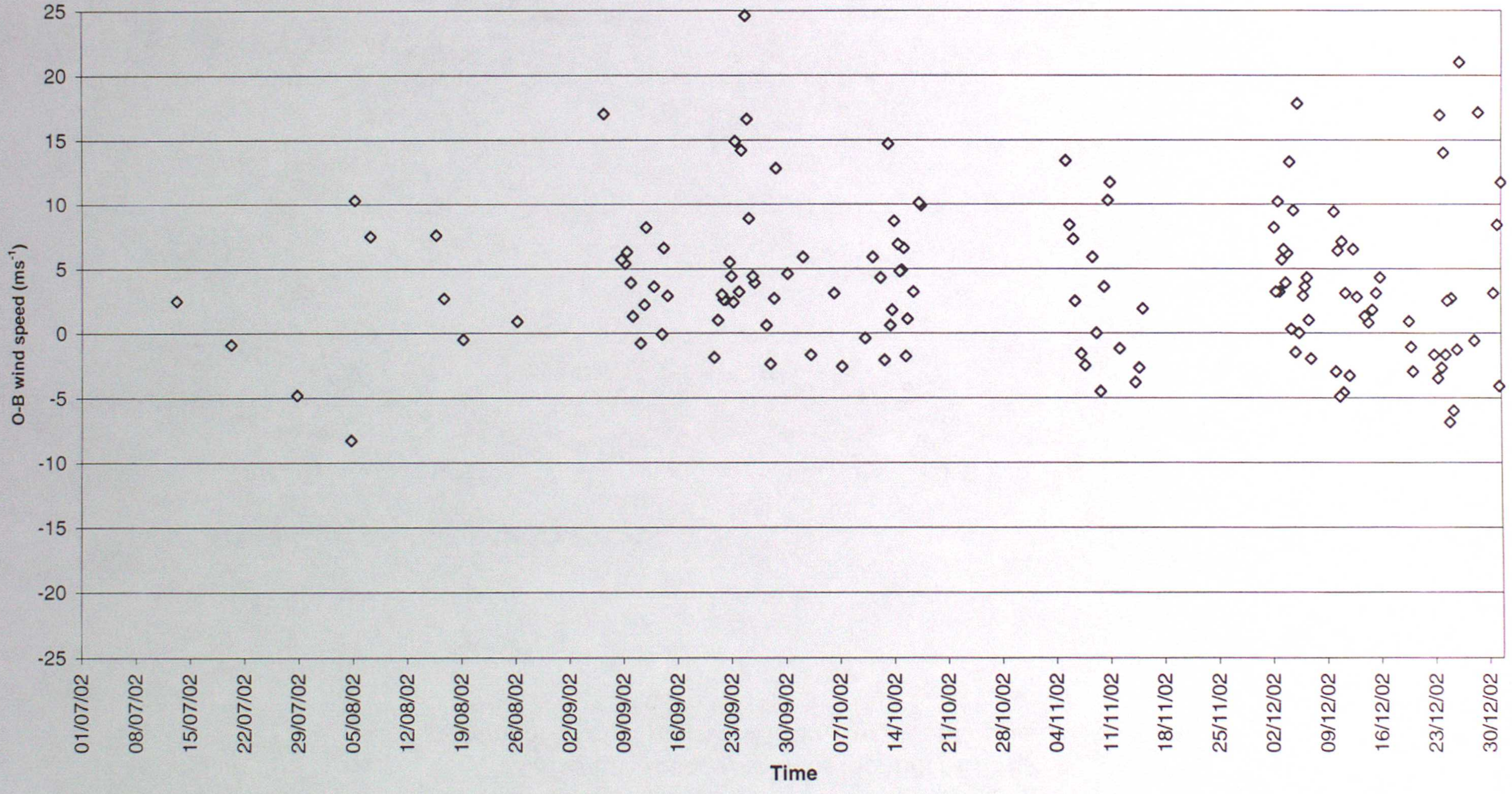
O-B wind speed (ms-1) for identifier DEHZ
Number of obs. plotted = 76   Number of outliers = 2

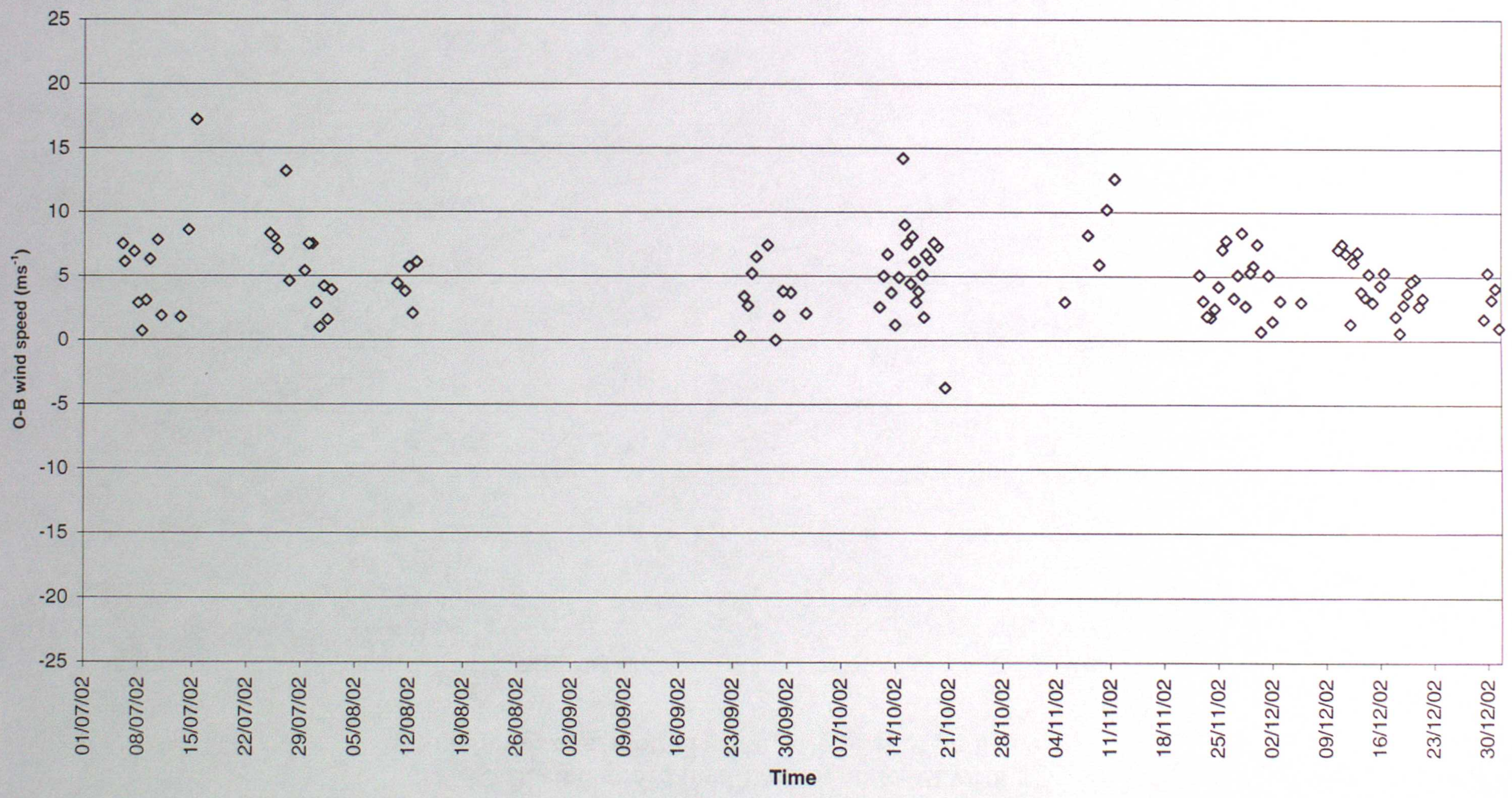


O-B wind speed (ms^{-1}) for identifier ELRR4

Number of obs. plotted = 258 Number of outliers = 0

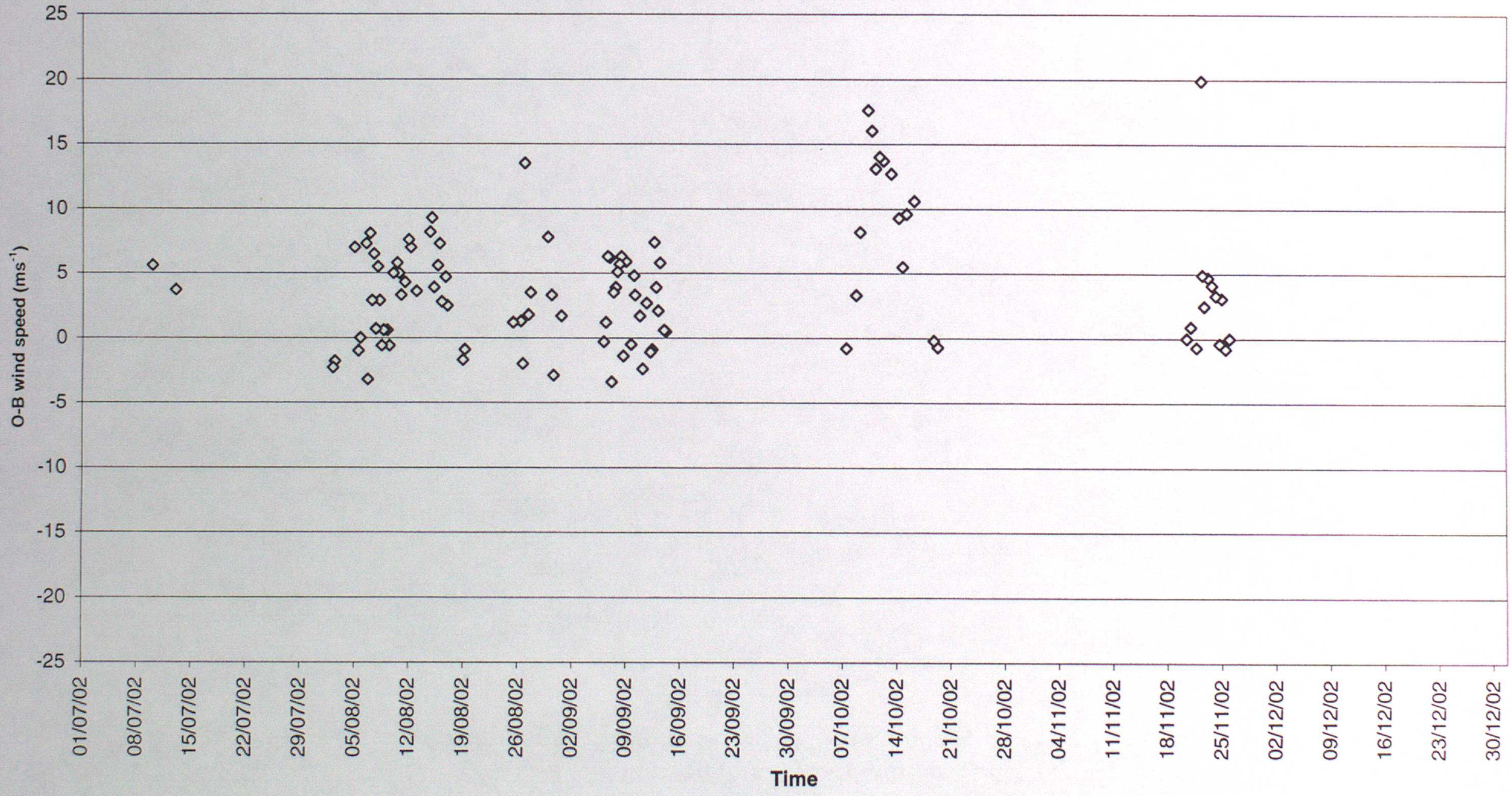
O-B wind speed (ms^{-1}) for identifier ELWU8
Number of obs. plotted = 136   Number of outliers = 1





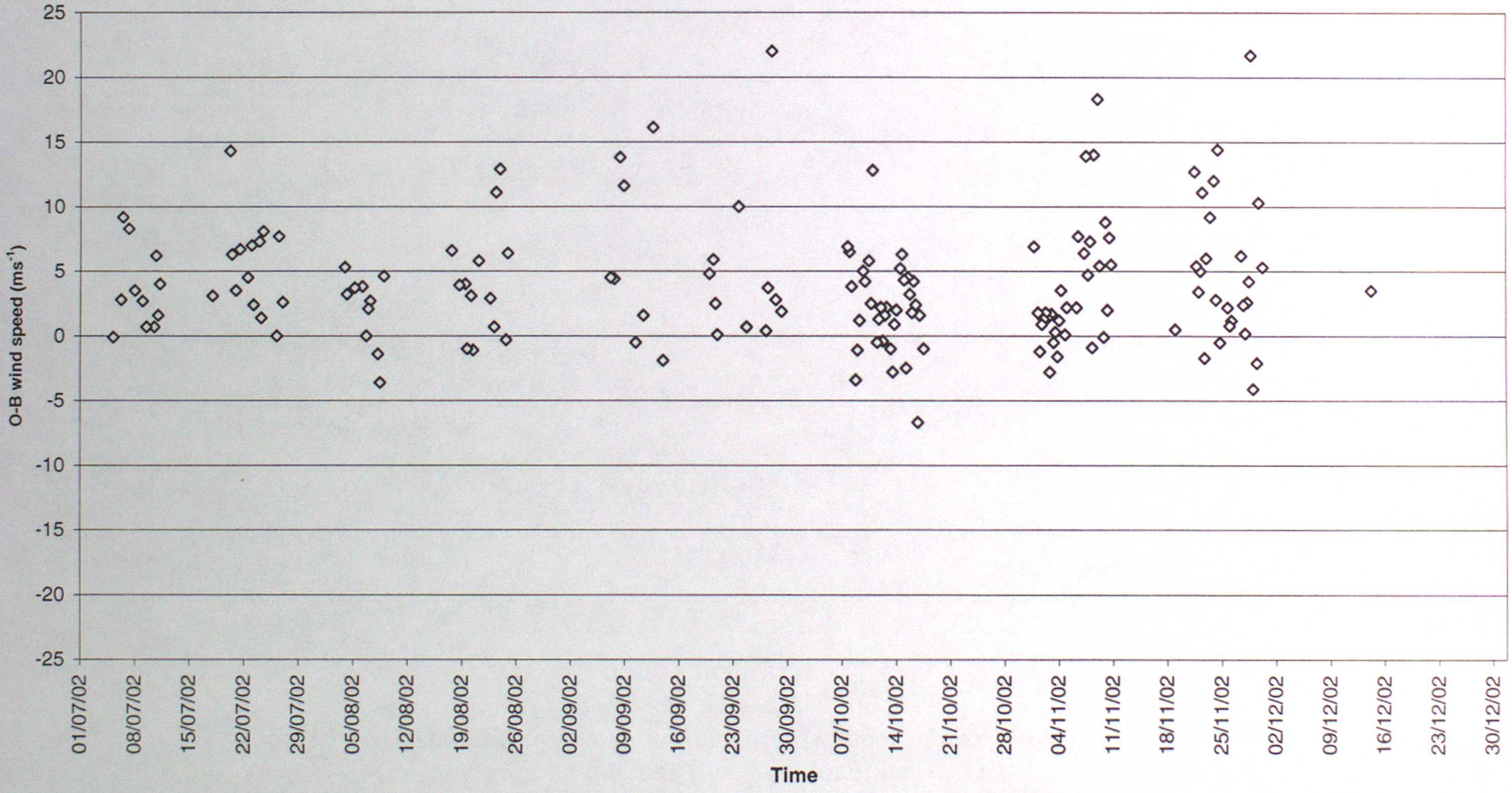
O-B wind speed (ms^{-1}) for identifier ELYB2
Number of obs. plotted = 112 Number of outliers = 0

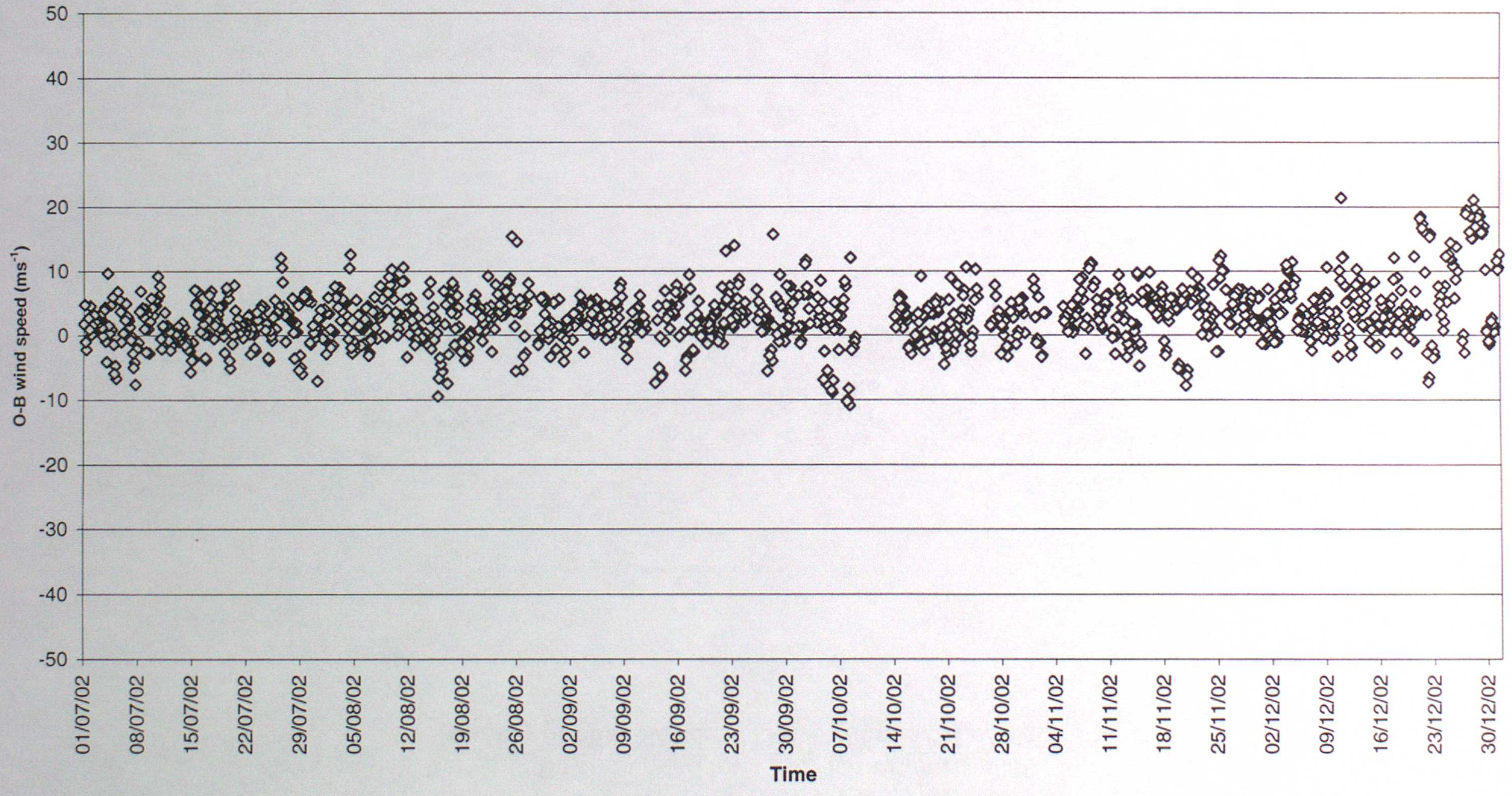
O-B wind speed (ms^{-1}) for identifier ELYL9
Number of obs. plotted = 101   Number of outliers = 0



O-B wind speed (ms^{-1}) for identifier ELZB9

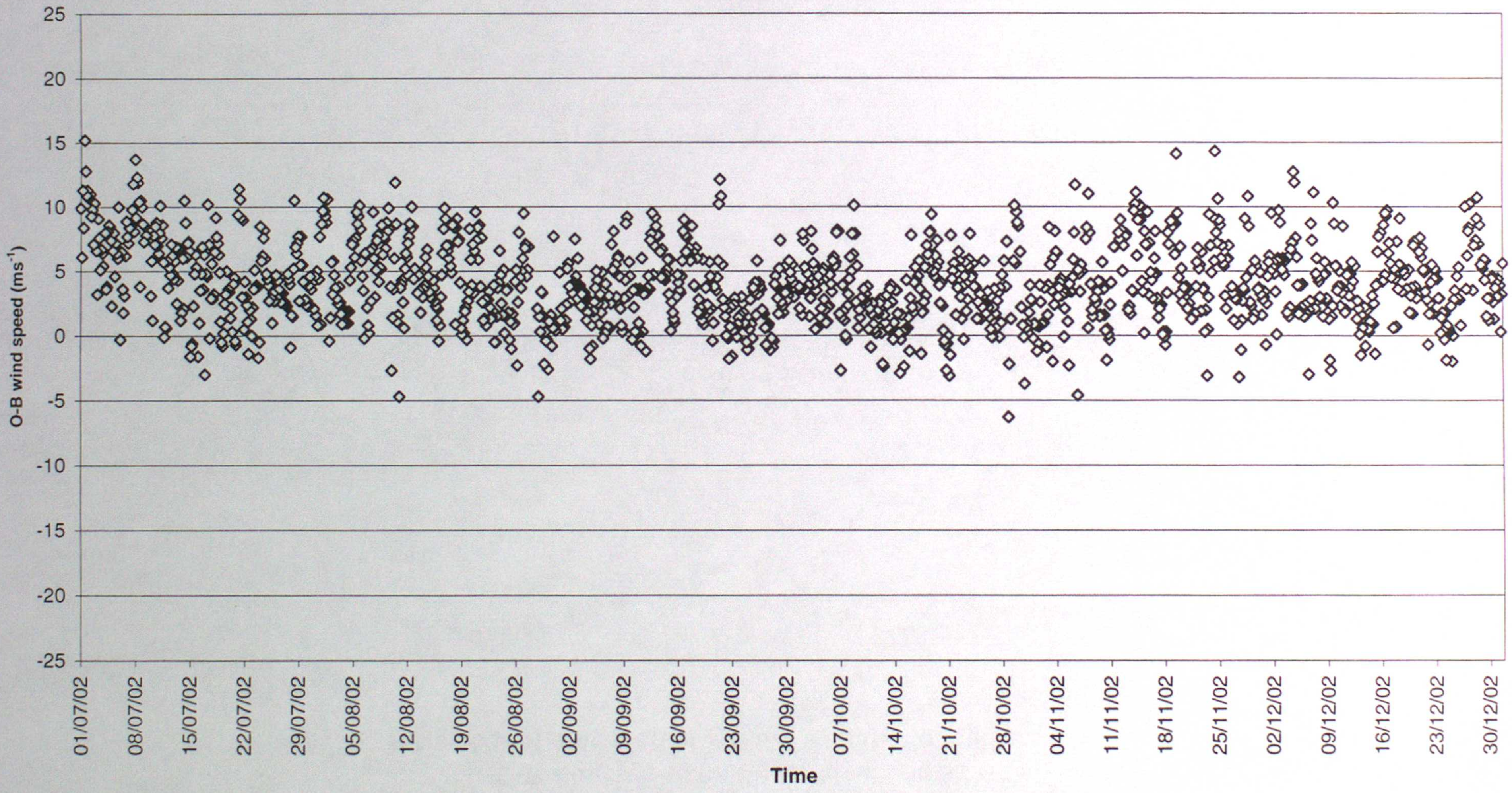
Number of obs. plotted = 158 Number of outliers = 1



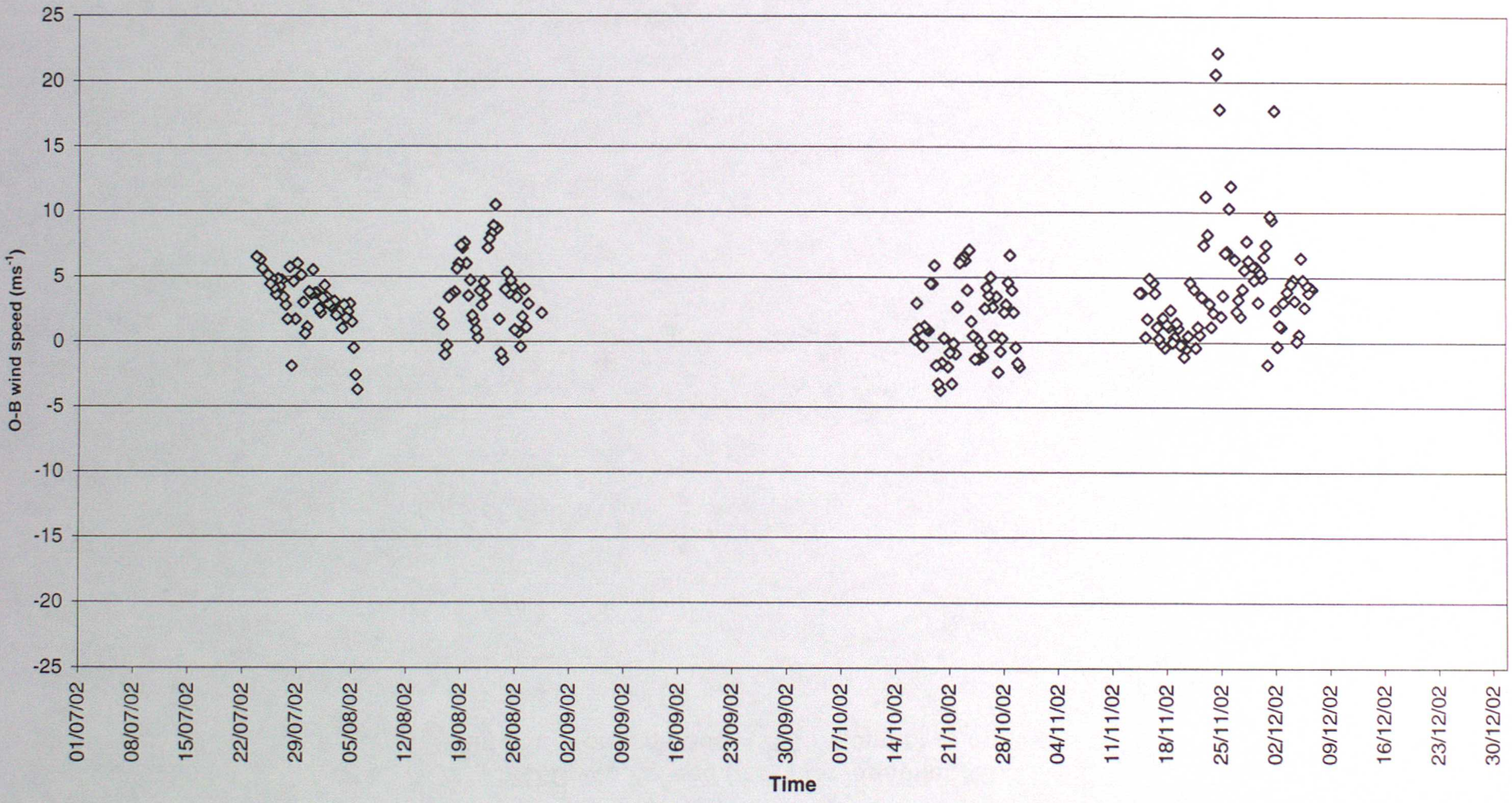


O-B wind speed (ms^{-1}) for identifier GYYP
Number of obs. plotted = 1232   Number of outliers = 0

O-B wind speed (ms^{-1}) for identifier HP6038
Number of obs. plotted = 1380   Number of outliers = 1

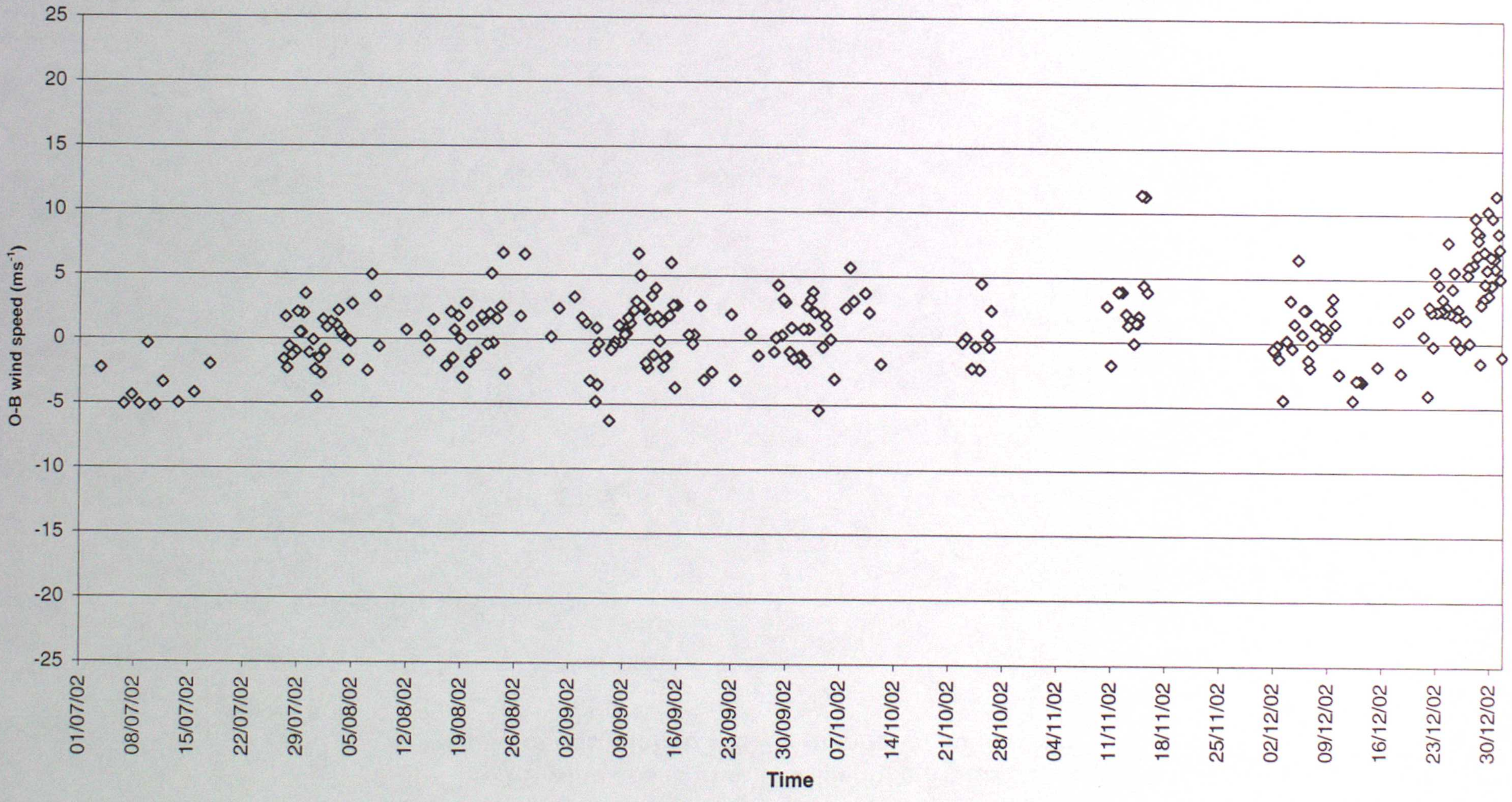


O-B wind speed (ms^{-1}) for identifier H9RS
Number of obs. plotted = 229   Number of outliers = 0

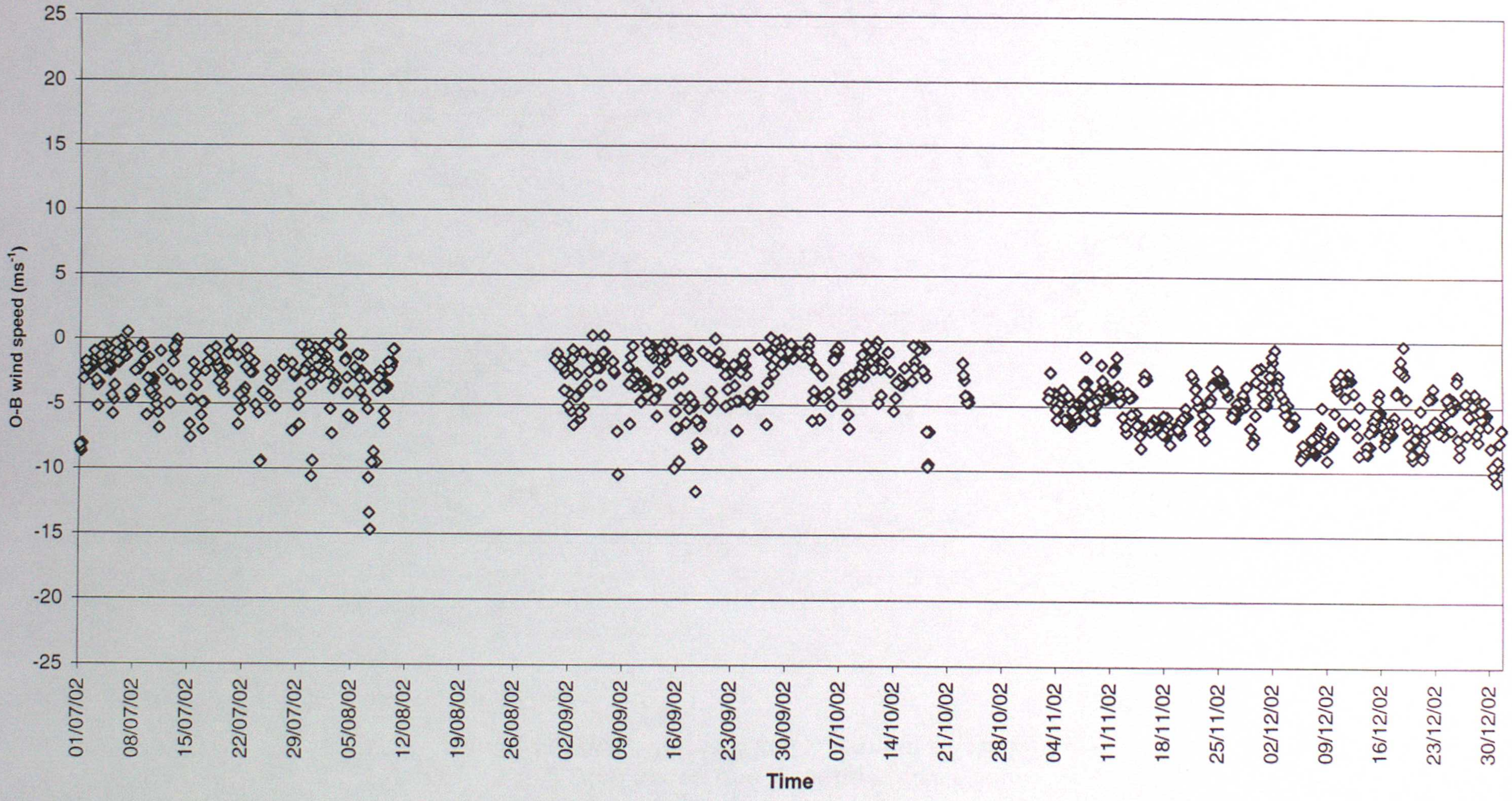


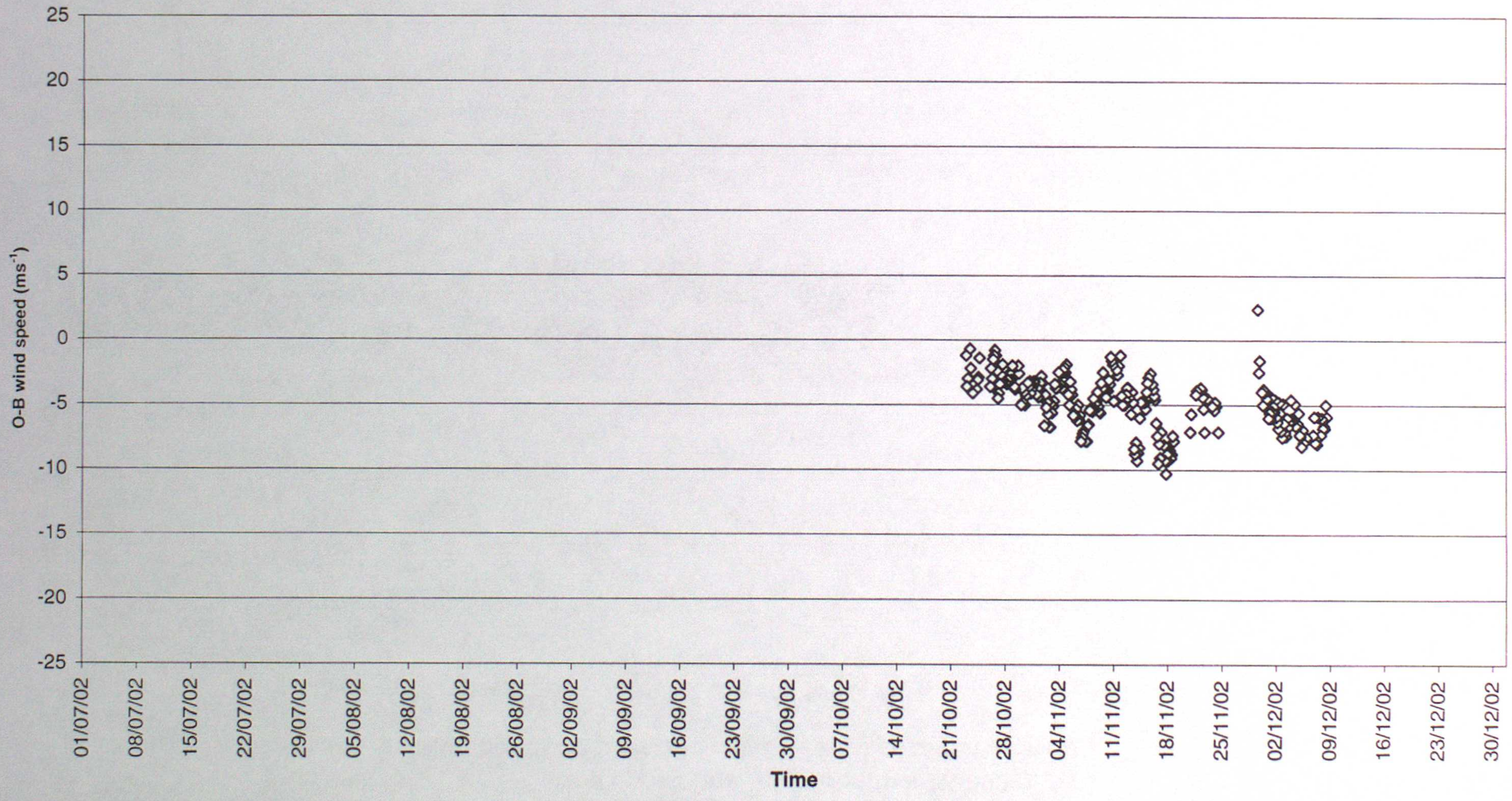
O-B wind speed (ms^{-1}) for identifier KRLZ

Number of obs. plotted = 258   Number of outliers = 0

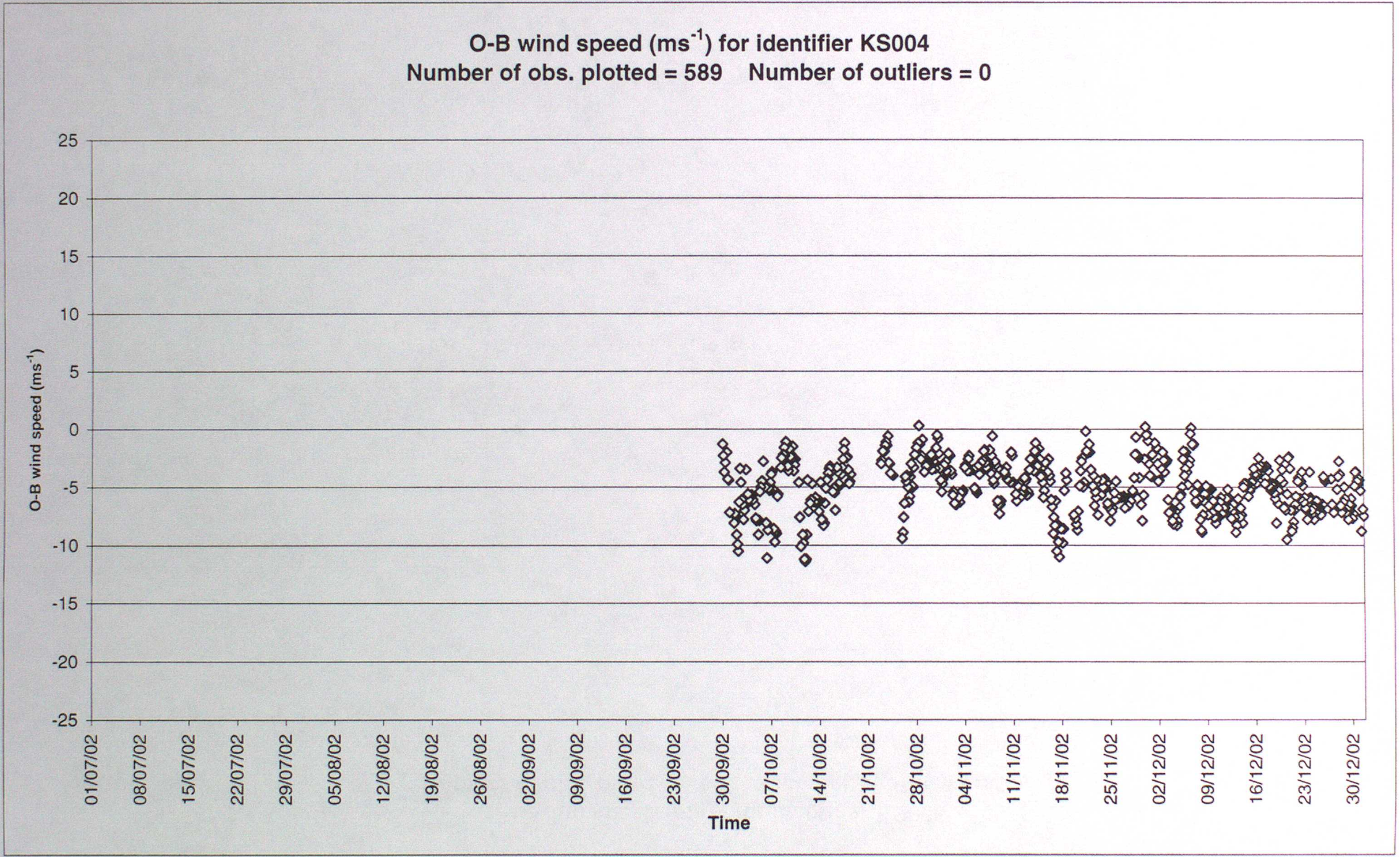


O-B wind speed (ms^{-1}) for identifier KS000
Number of obs. plotted = 805   Number of outliers = 0

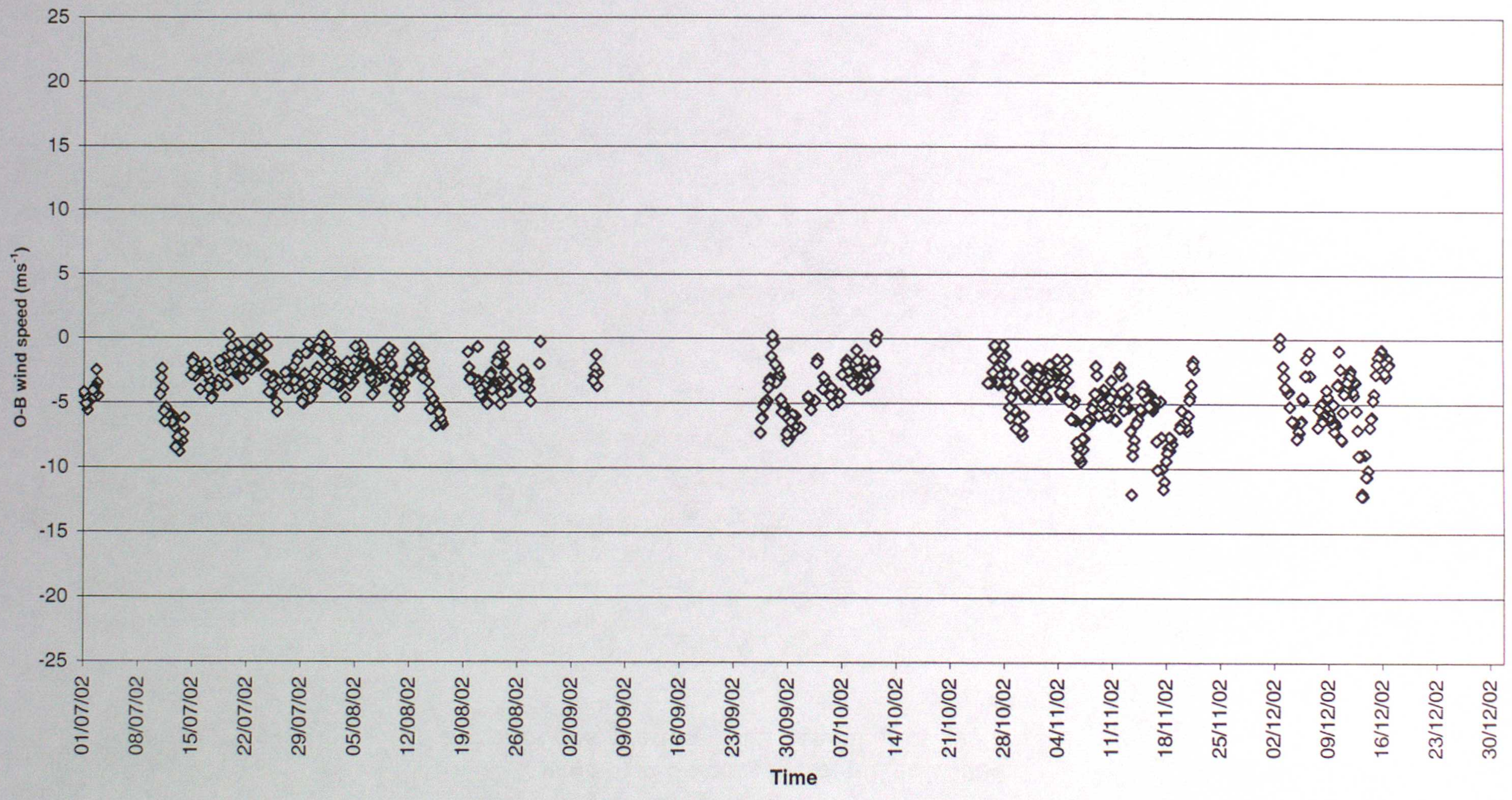


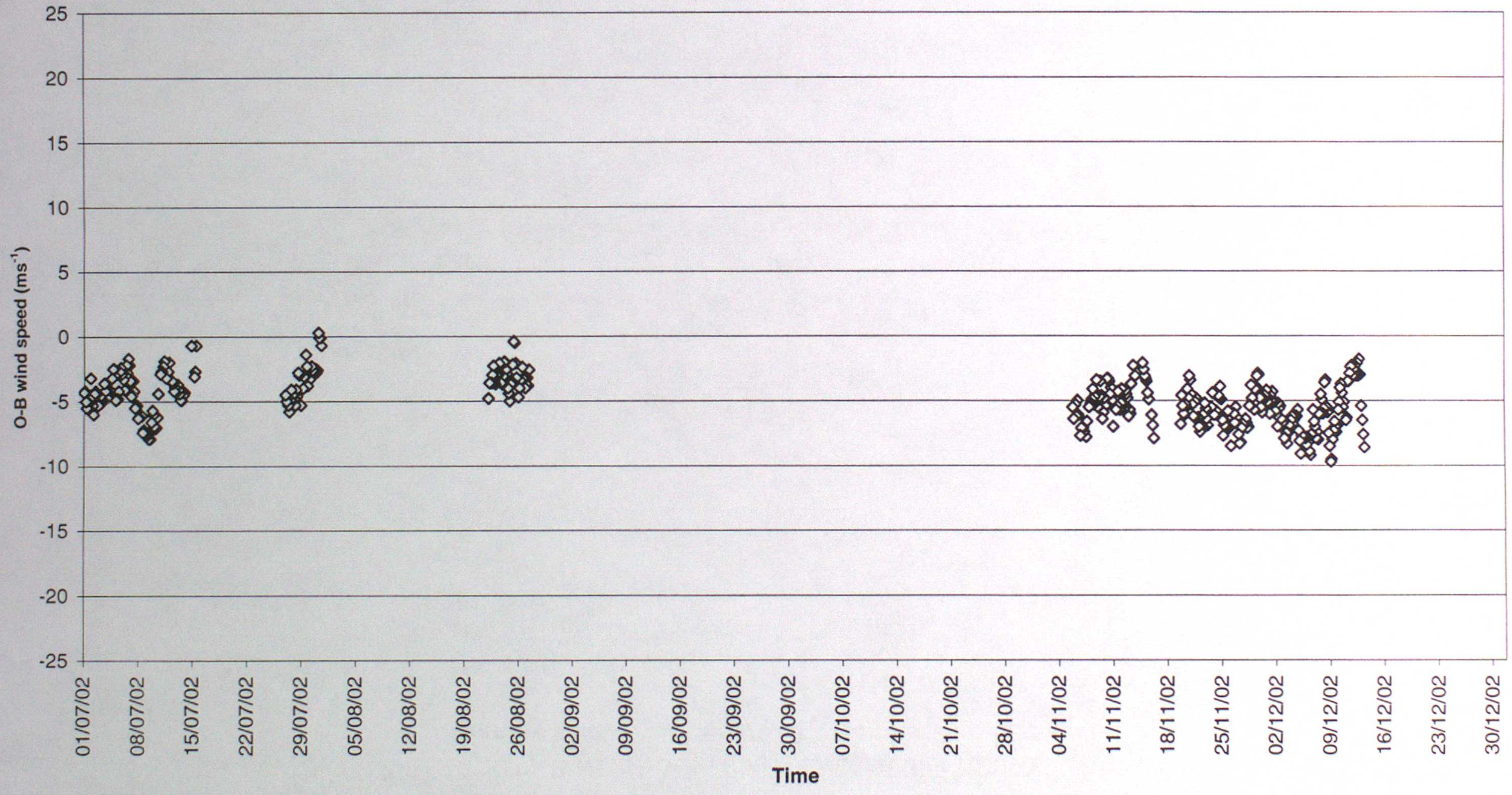


O-B wind speed (ms^{-1}) for identifier KS002
Number of obs. plotted = 256   Number of outliers = 0


O-B wind speed (ms^{-1}) for identifier KS004
Number of obs. plotted = 589   Number of outliers = 0
O-B wind speed (ms^{-1})
25
20
15
10
5
0
-5
-10
-15
-20
-25
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

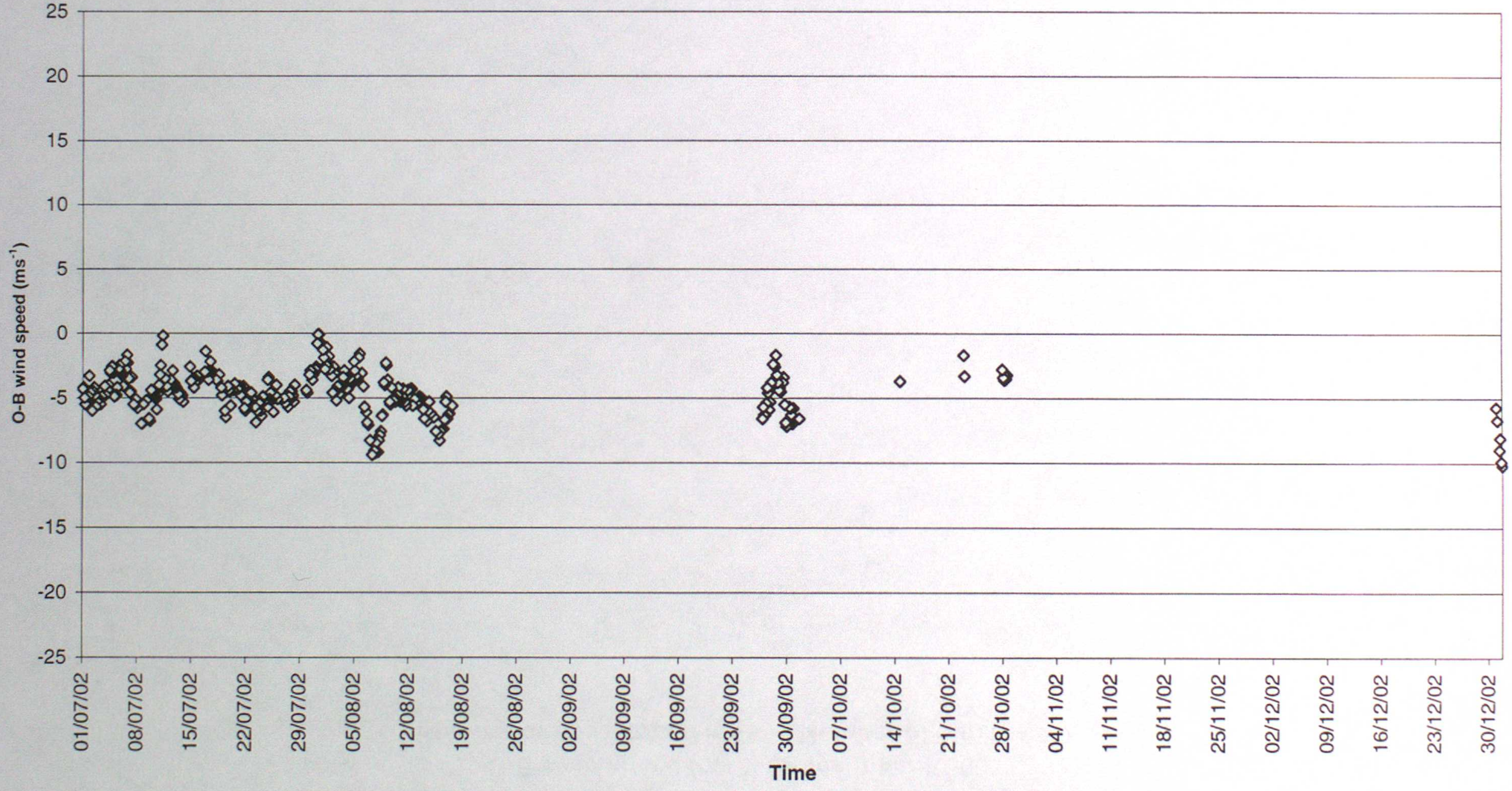
O-B wind speed (ms^{-1}) for identifier KS005
Number of obs. plotted = 660   Number of outliers = 0



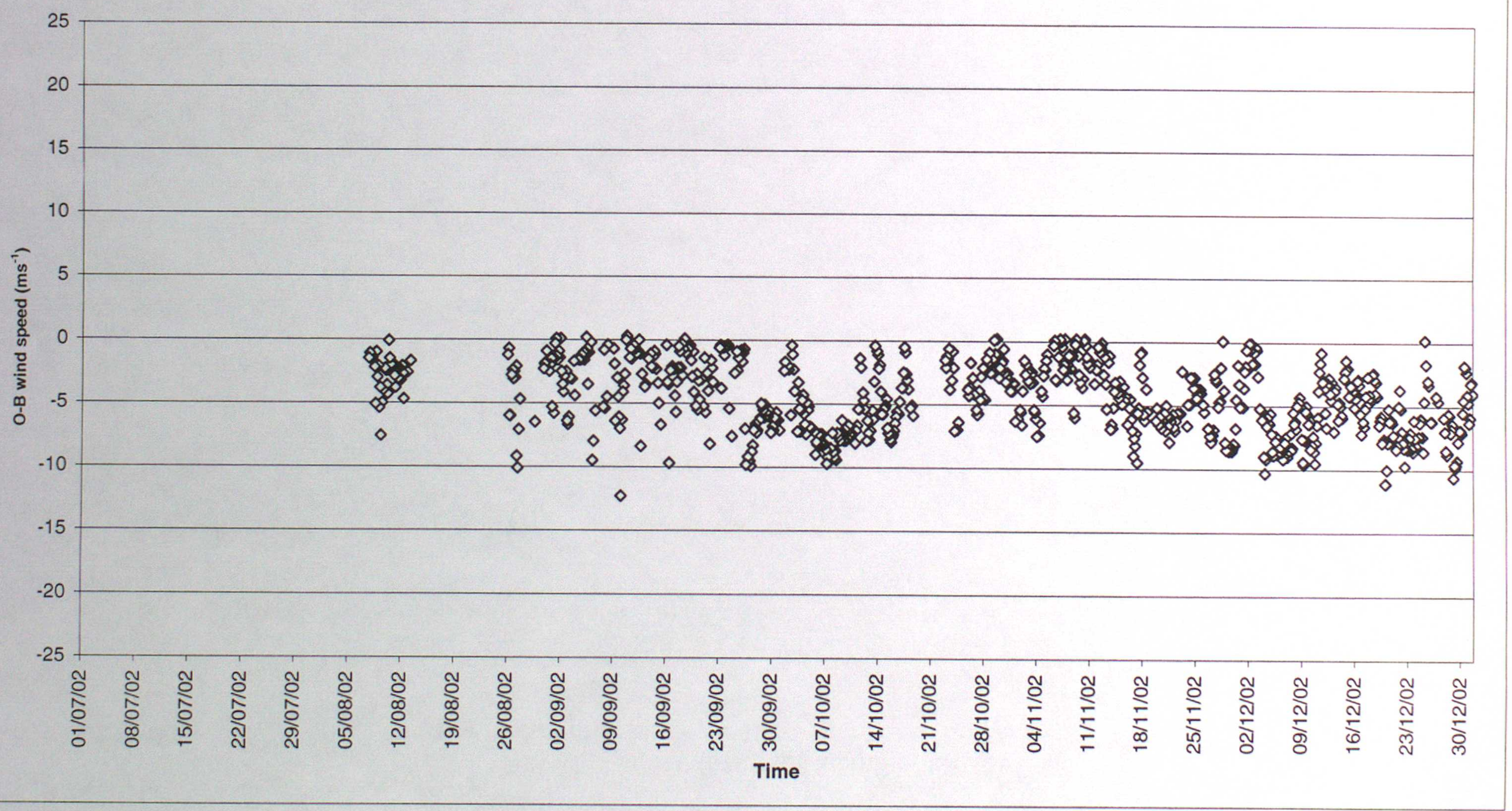


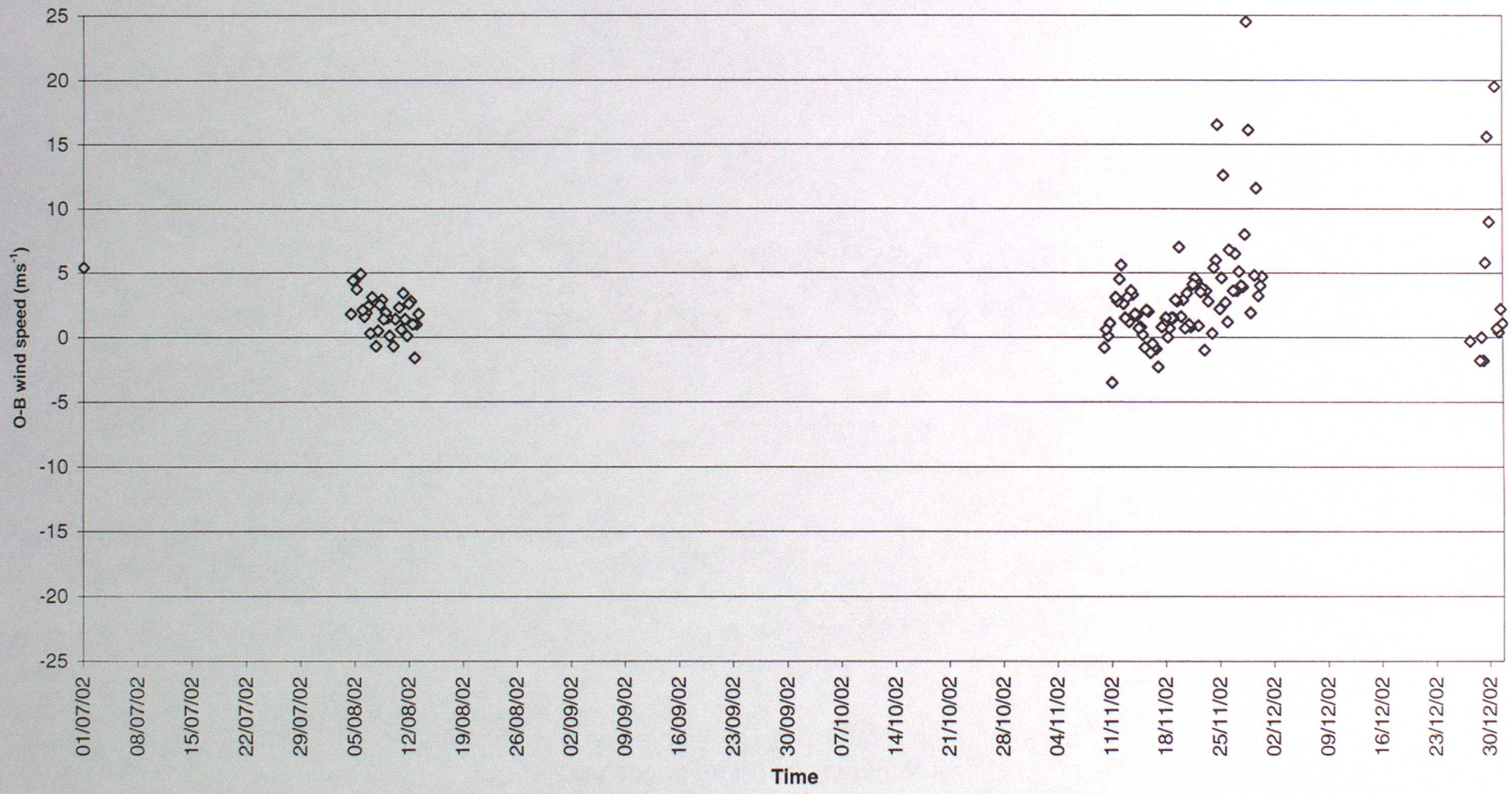
O-B wind speed (ms^{-1}) for identifier KS006
Number of obs. plotted = 411   Number of outliers = 0

O-B wind speed (ms^{-1}) for identifier KS010
Number of obs. plotted = 329   Number of outliers = 0



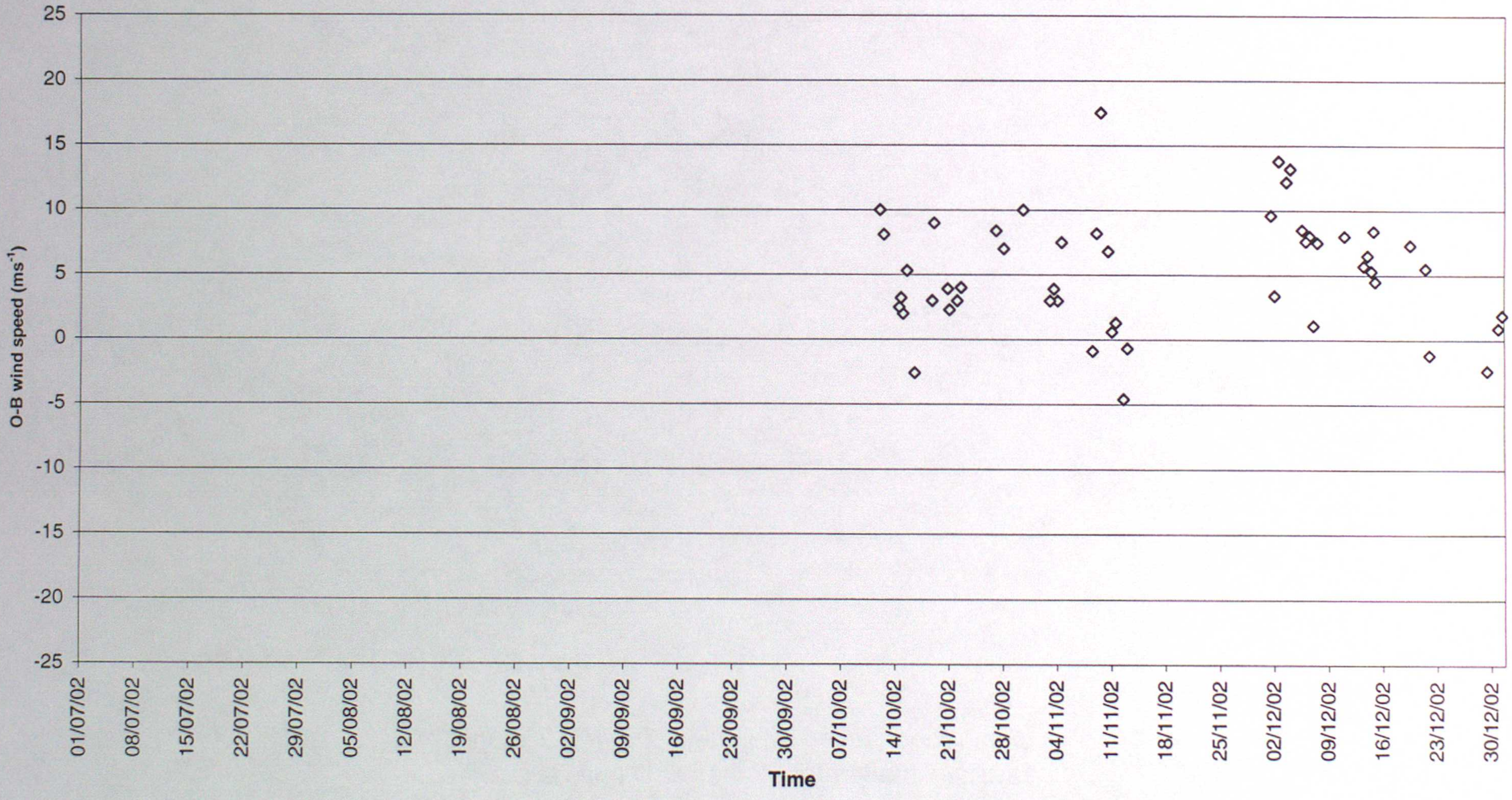
O-B wind speed (ms^{-1}) for identifier KS025
Number of obs. plotted = 814   Number of outliers = 0



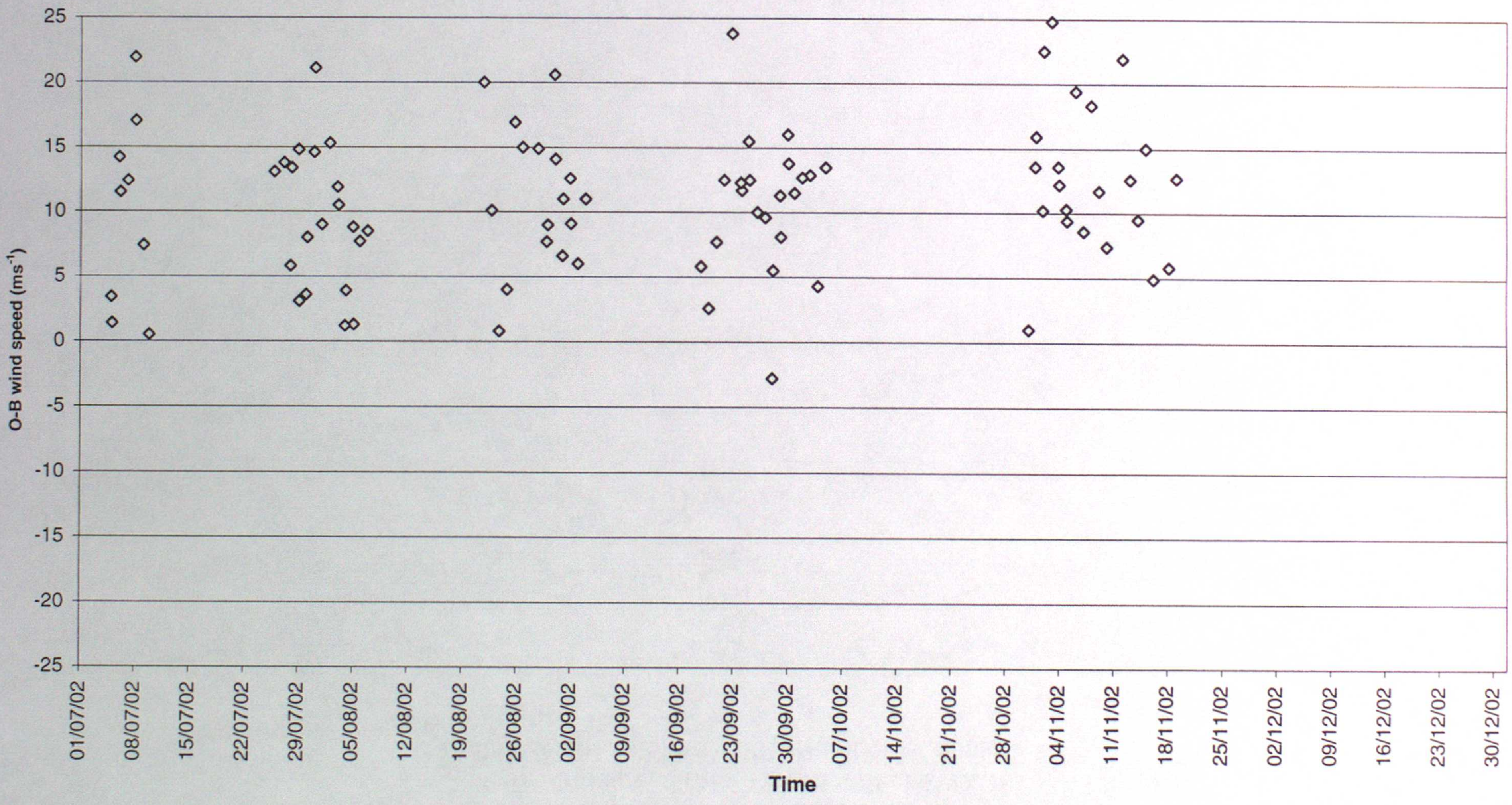


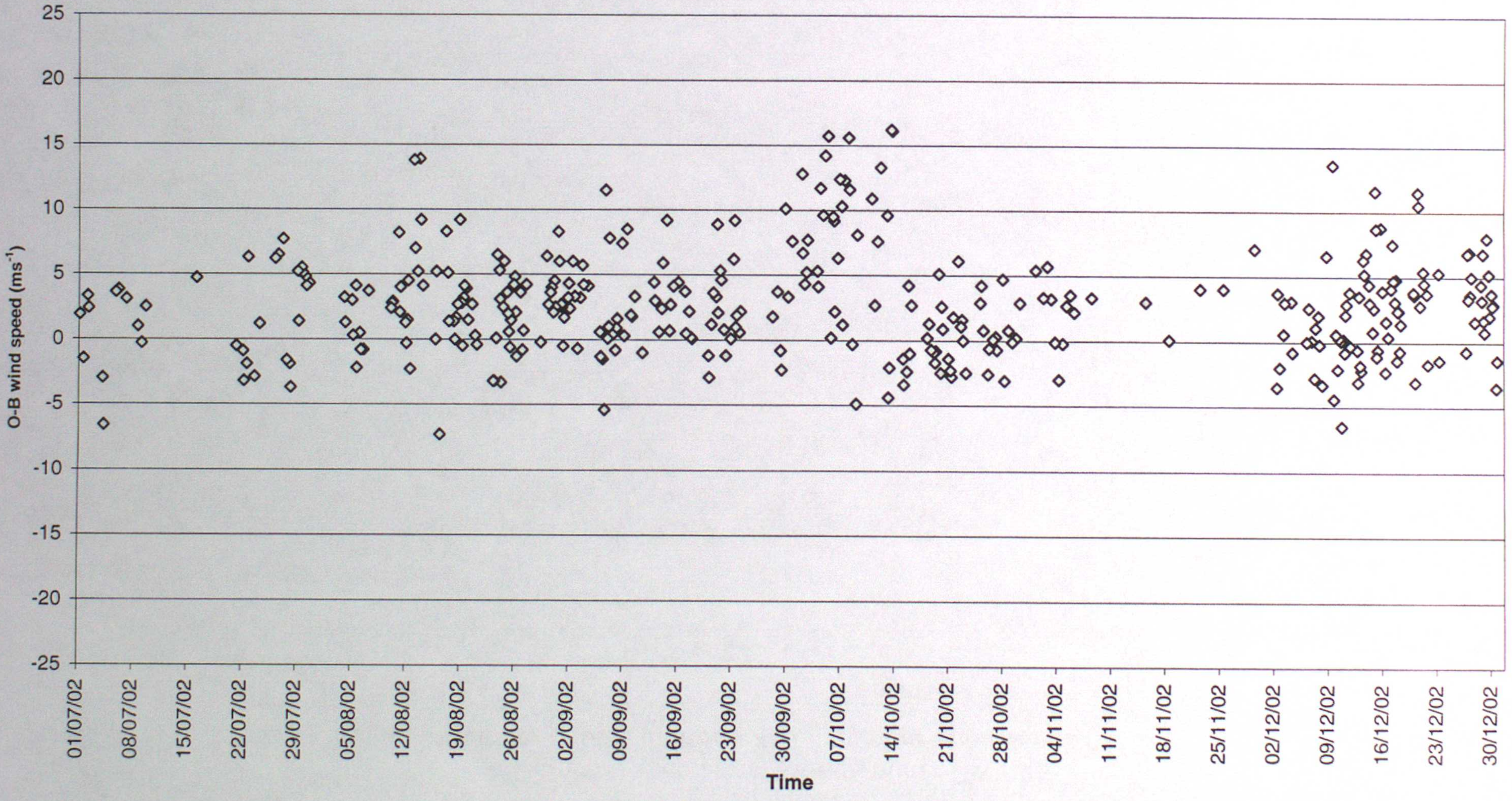
O-B wind speed (ms^{-1}) for identifier LAGB5
Number of obs. plotted = 123   Number of outliers = 2

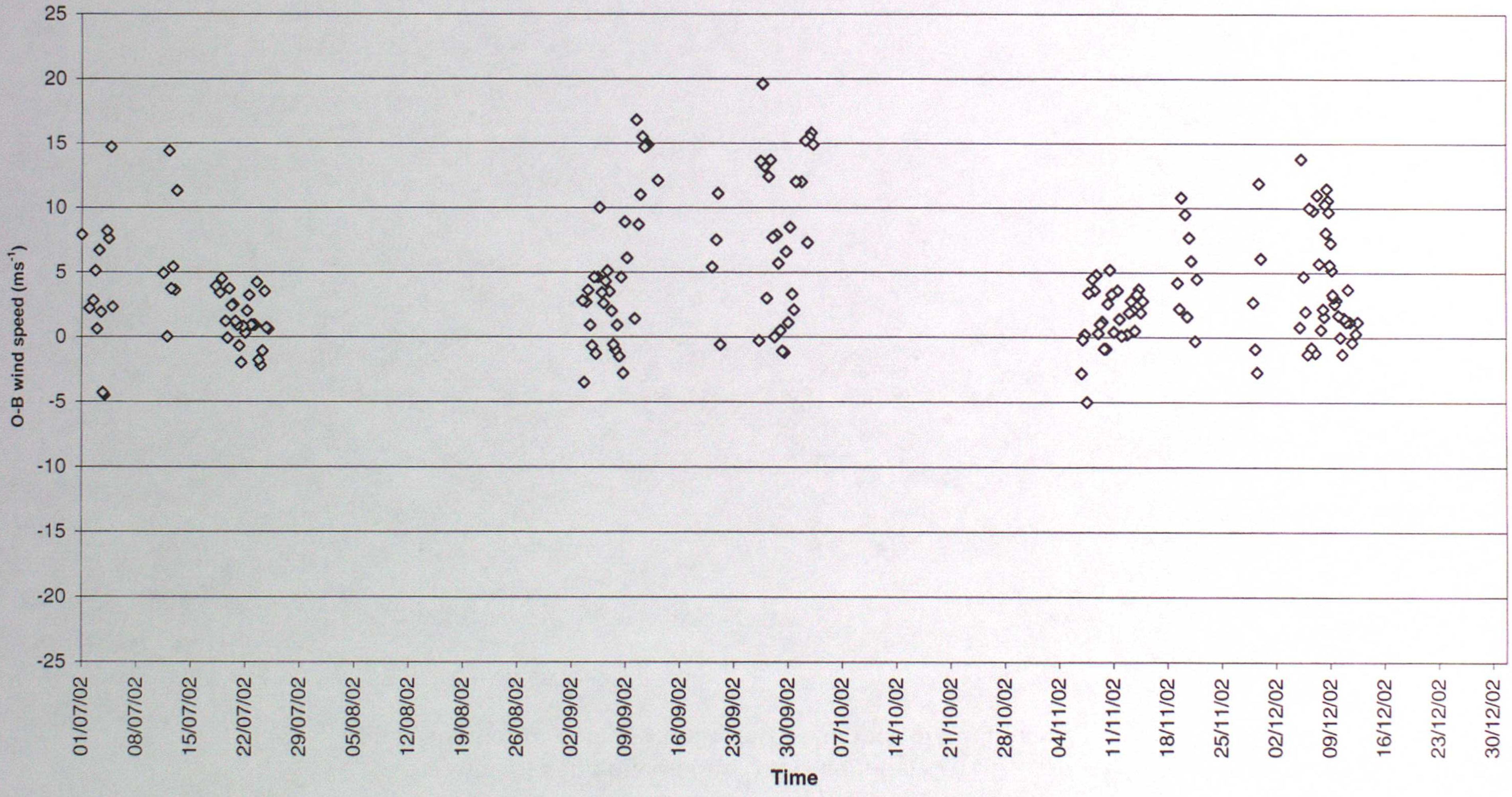
O-B wind speed (ms^{-1}) for identifier MVXQ8
Number of obs. plotted = 50   Number of outliers = 1



O-B wind speed (ms^{-1}) for identifier OUSE6
Number of obs. plotted = 90   Number of outliers = 1

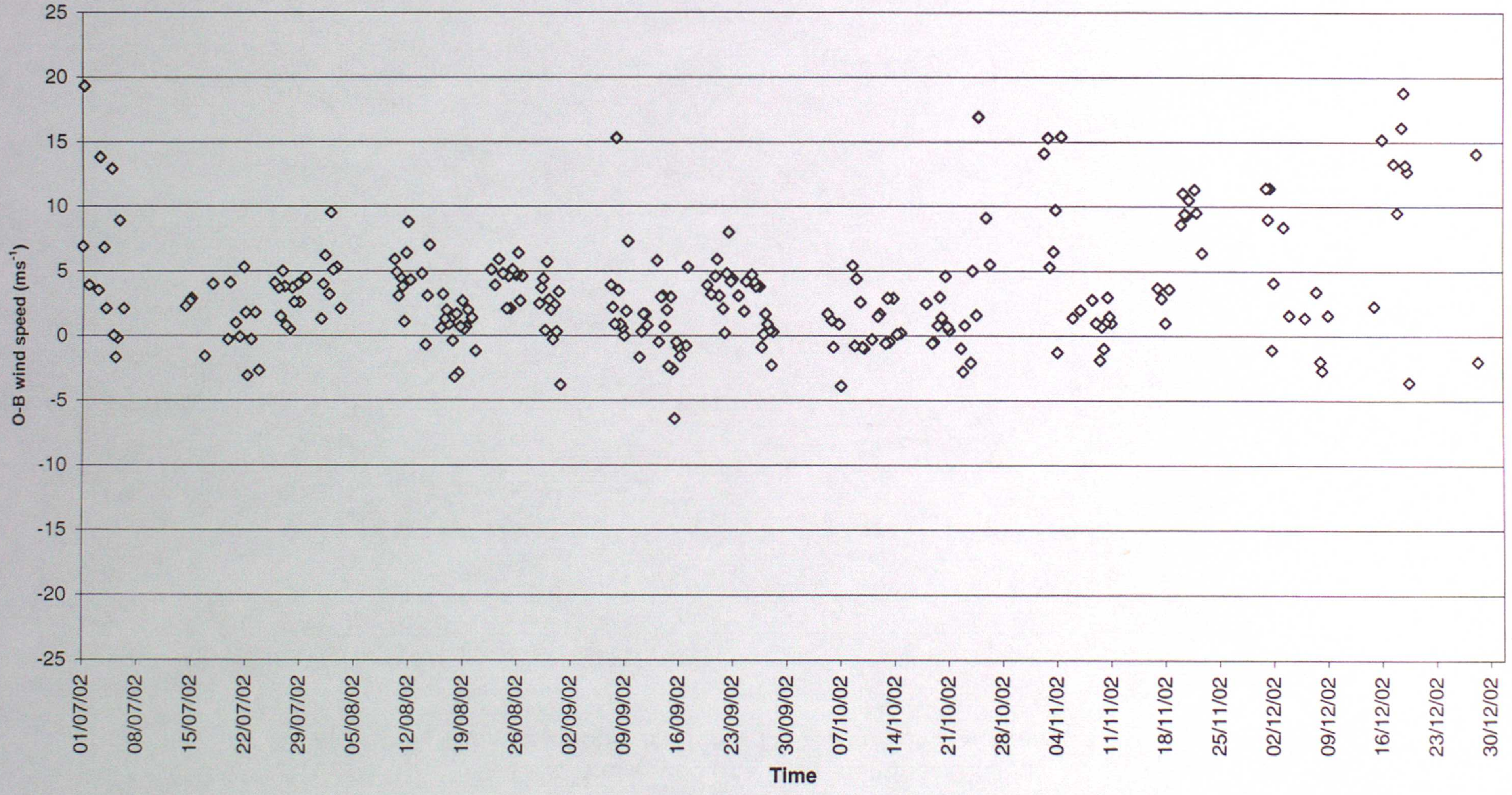



O-B wind speed (ms^{-1}) for identifier OWDD
Number of obs. plotted = 366   Number of outliers = 2

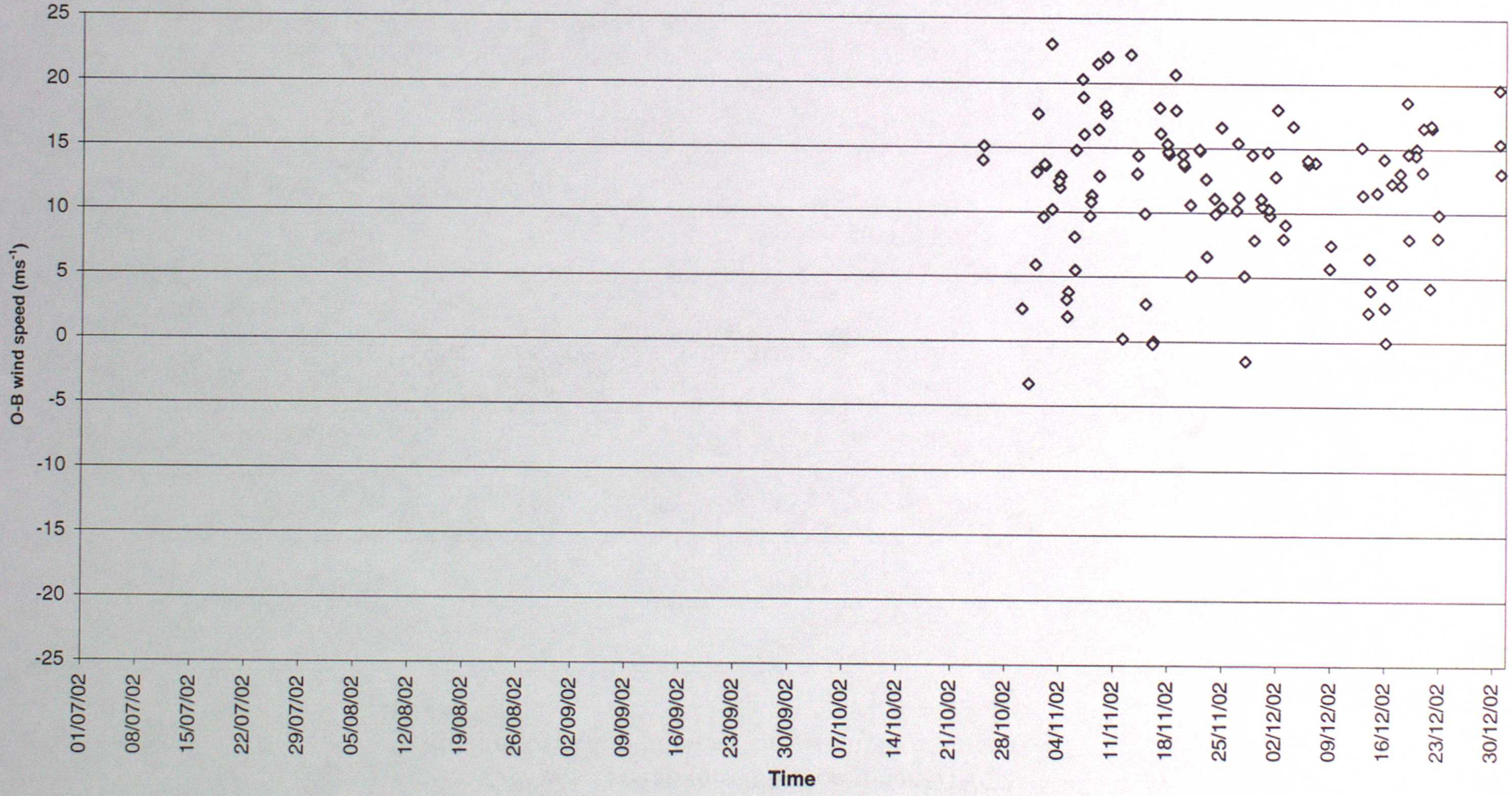


O-B wind speed (ms^{-1}) for identifier OWVI2
Number of obs. plotted = 188   Number of outliers = 0

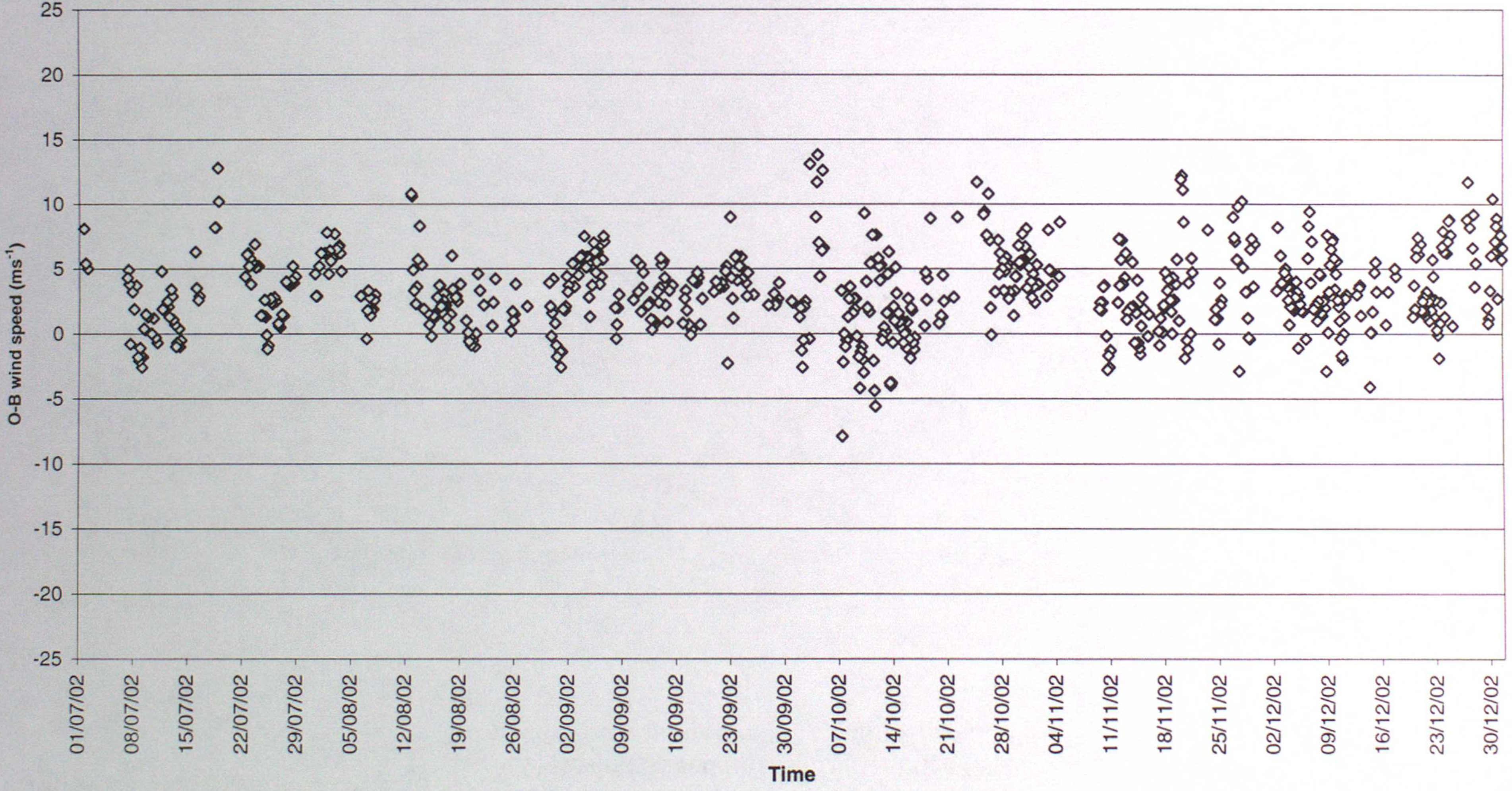
O-B wind speed (ms^{-1}) for identifier OYVQ2
Number of obs. plotted = 249   Number of outliers = 3

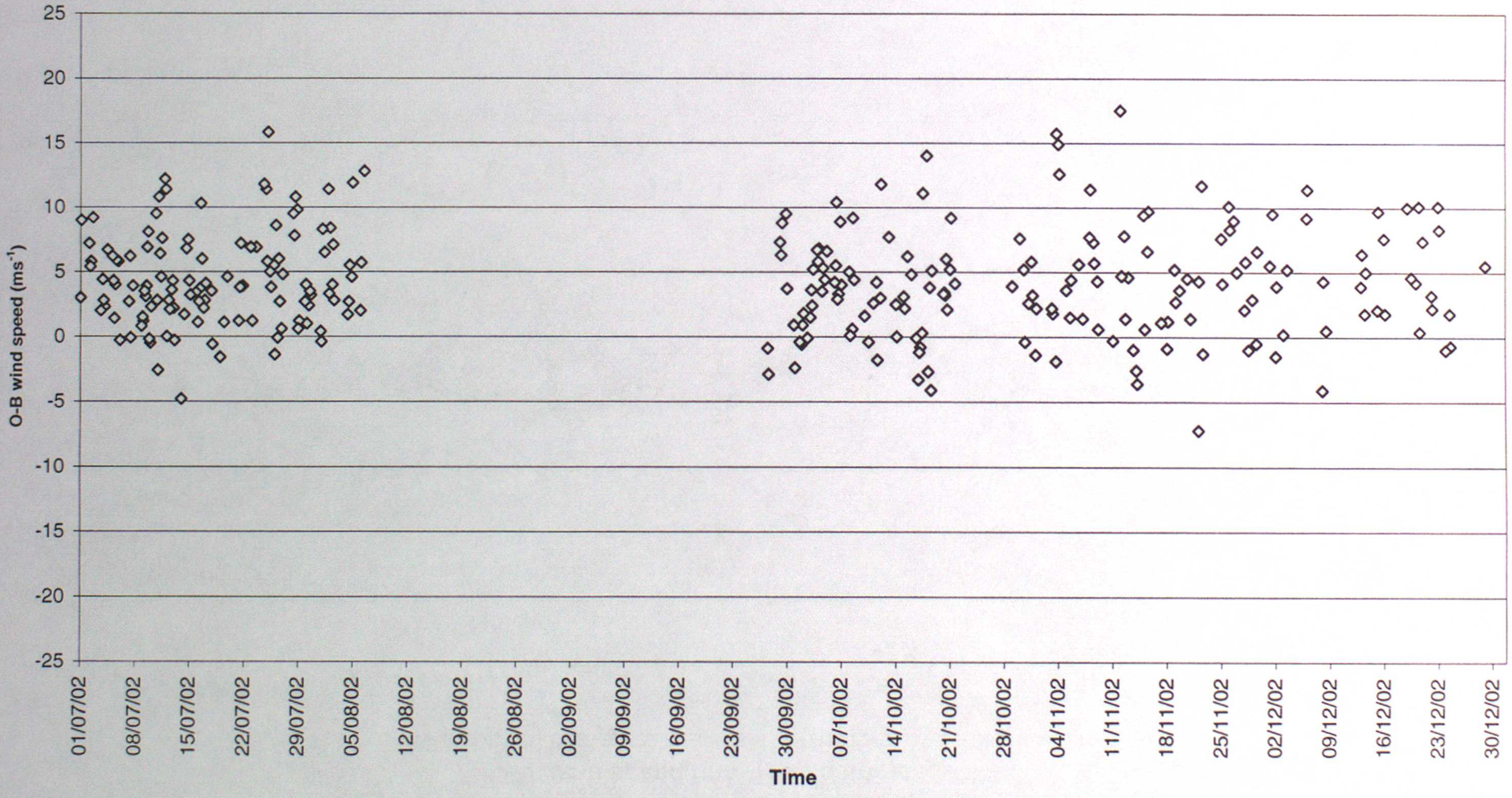


O-B wind speed (ms^{-1}) for identifier OZQS2
Number of obs. plotted = 111   Number of outliers = 1

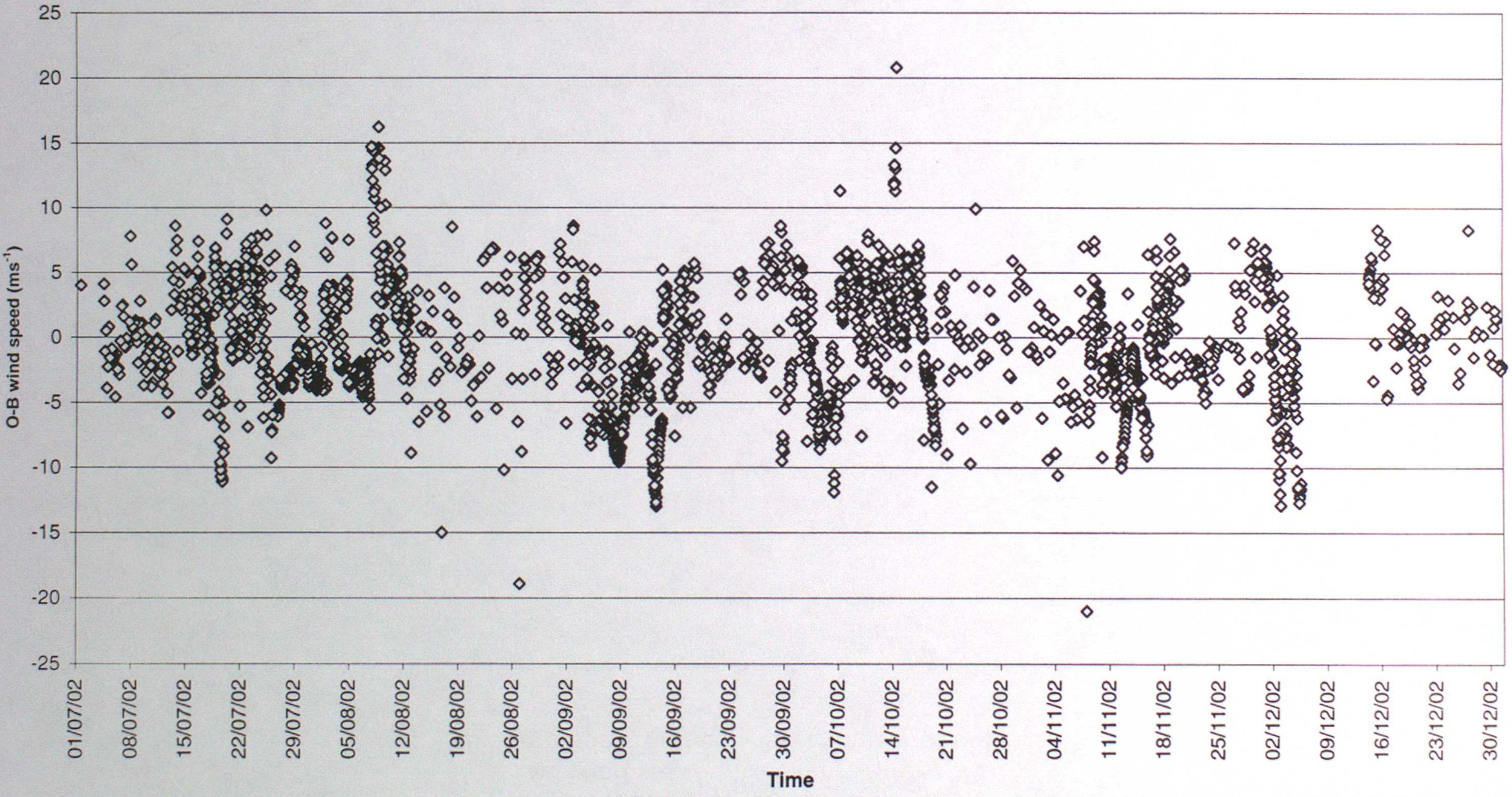


O-B wind speed (ms^{-1}) for identifier PJVM
Number of obs. plotted = 661 Number of outliers = 0

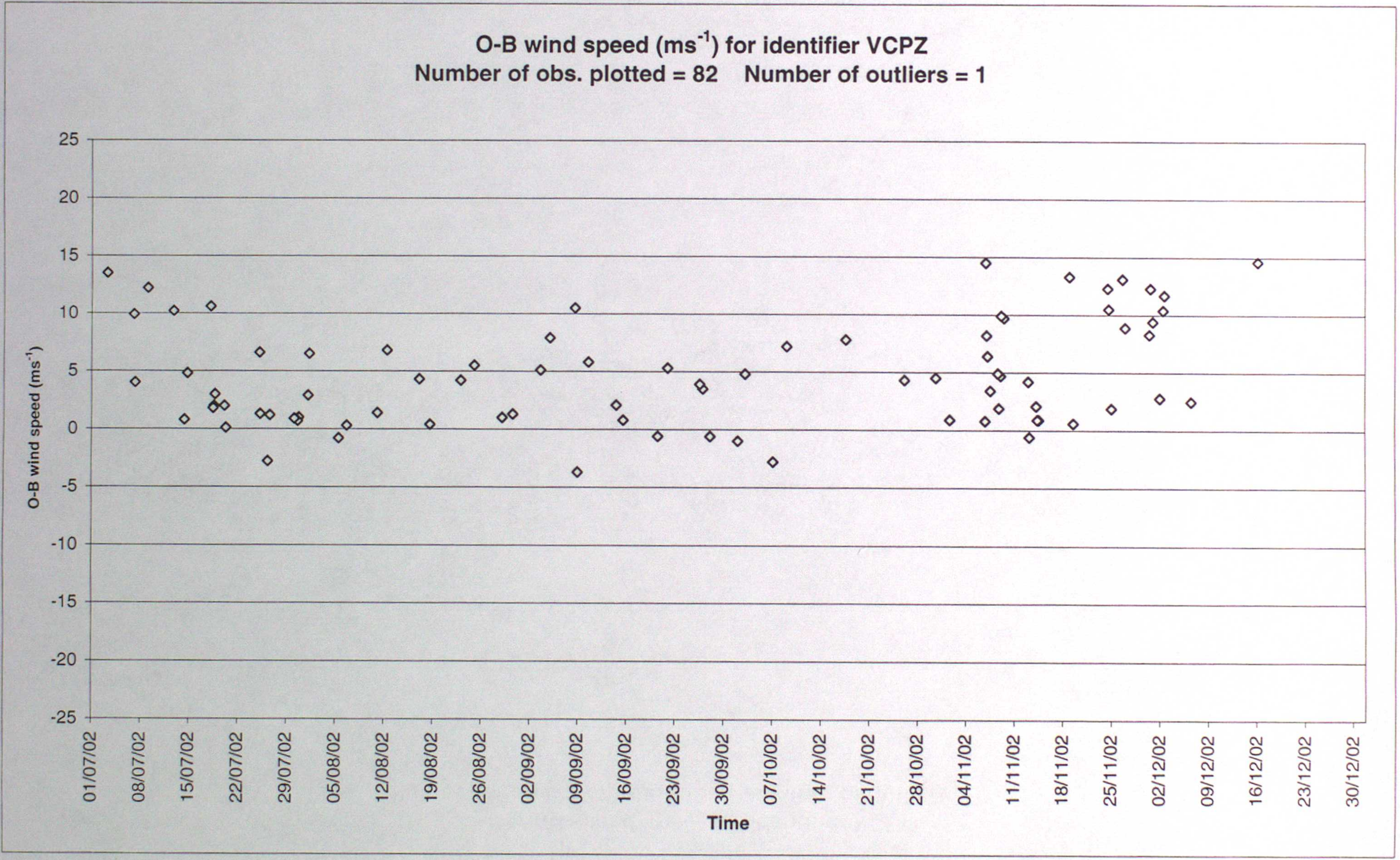




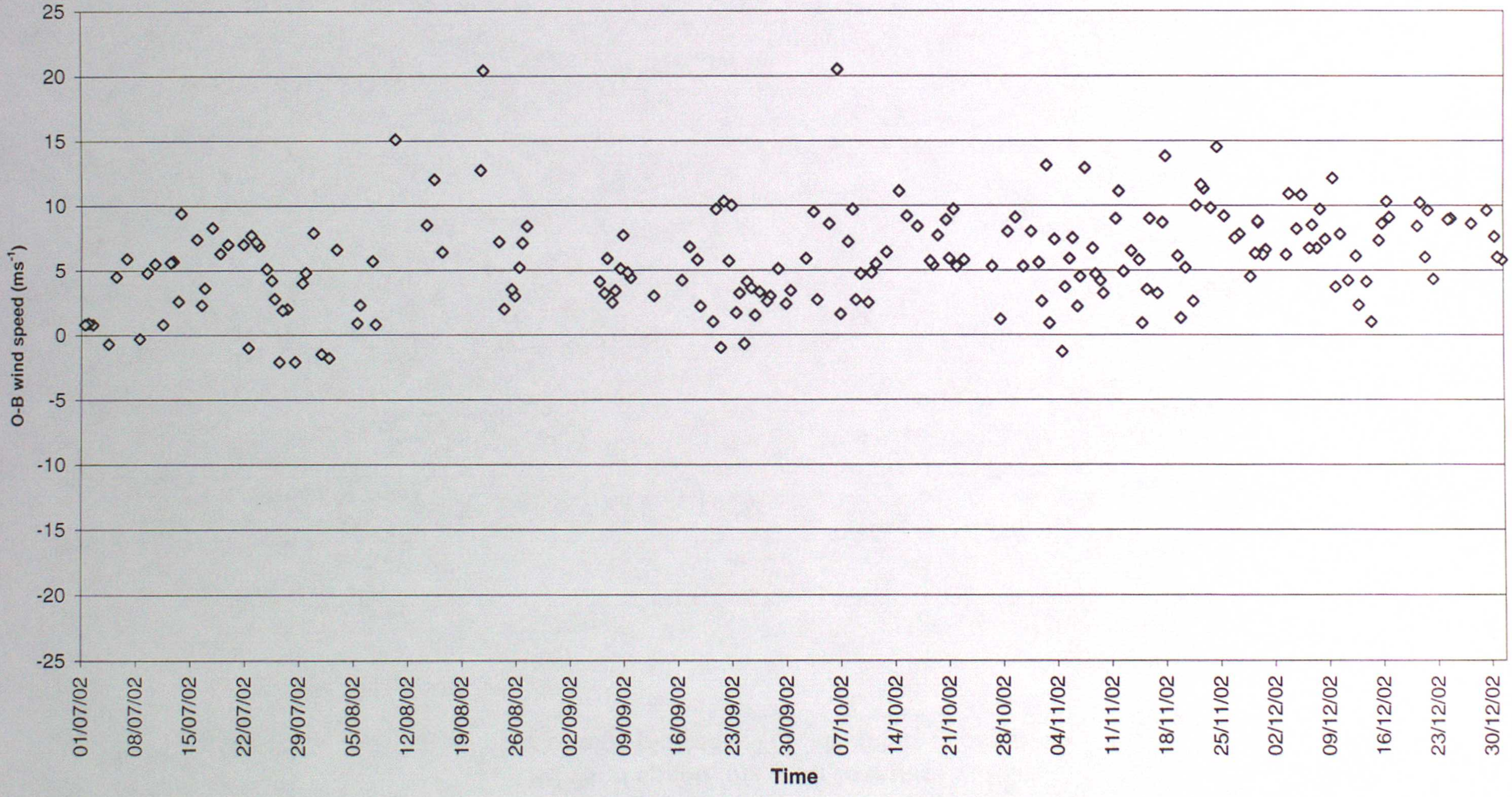
O-B wind speed (ms^{-1}) for identifier TSMU
Number of obs. plotted = 287 Number of outliers = 1



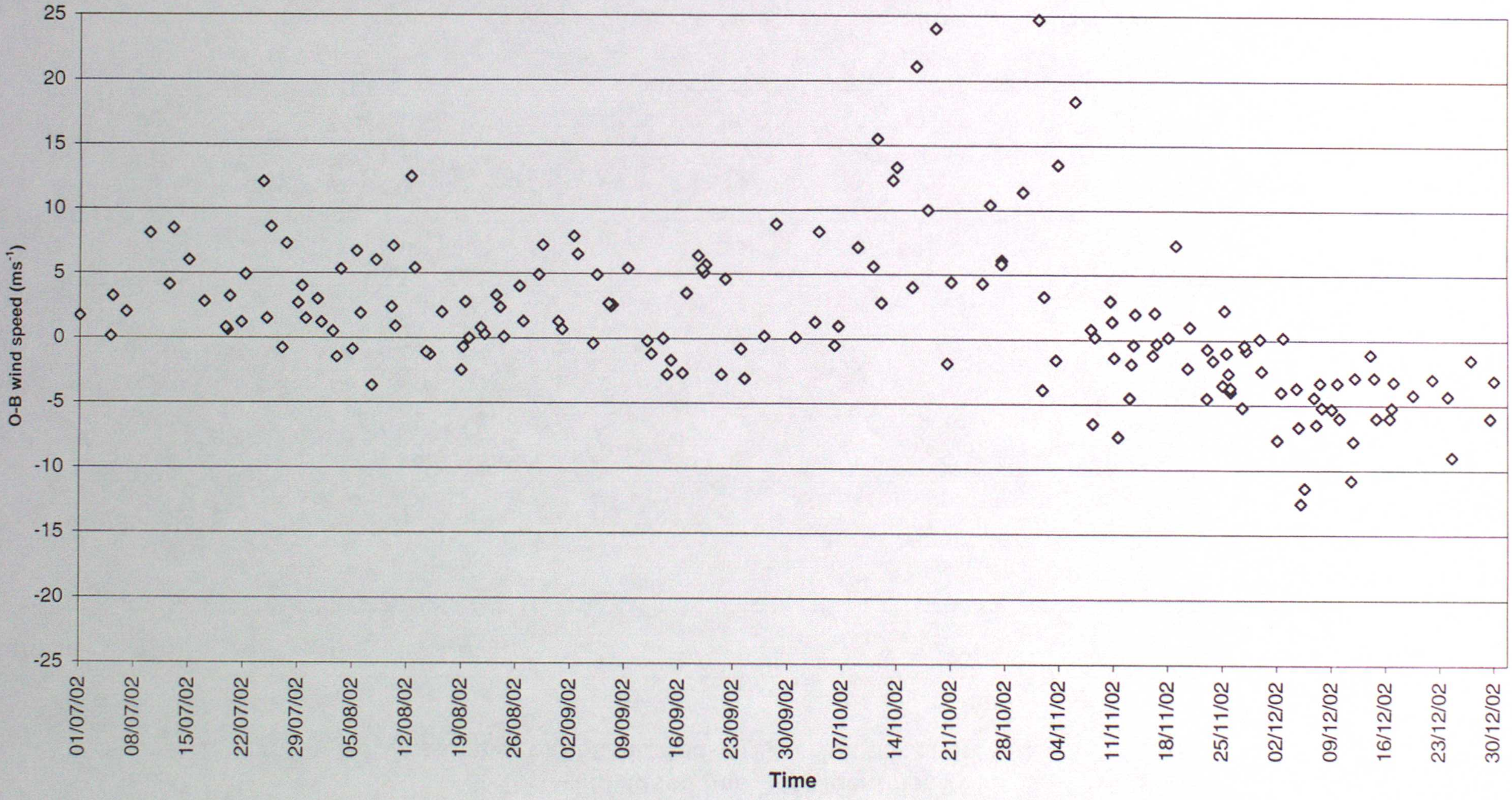
O-B wind speed (ms^{-1}) for identifier VCLM
Number of obs. plotted = 2304   Number of outliers = 0

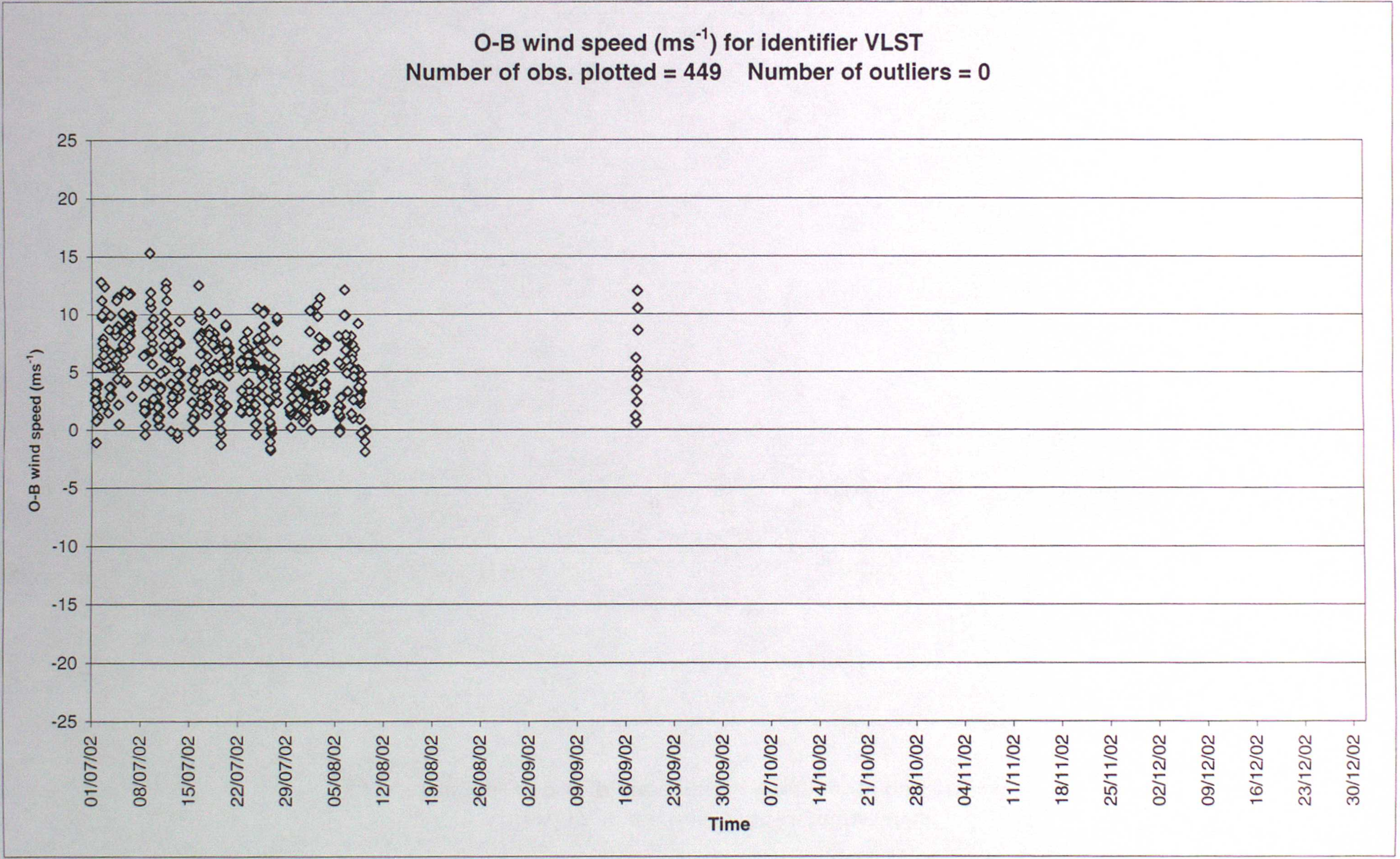

O-B wind speed (ms^{-1}) for identifier VCPZ
Number of obs. plotted = 82   Number of outliers = 1
O-B wind speed (ms^{-1})
25
20
15
10
5
0
-5
-10
-15
-20
-25
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

O-B wind speed (ms^{-1}) for identifier VGLZ
Number of obs. plotted = 197 Number of outliers = 1



O-B wind speed (ms^{-1}) for identifier VLKG
Number of obs. plotted = 171   Number of outliers = 4

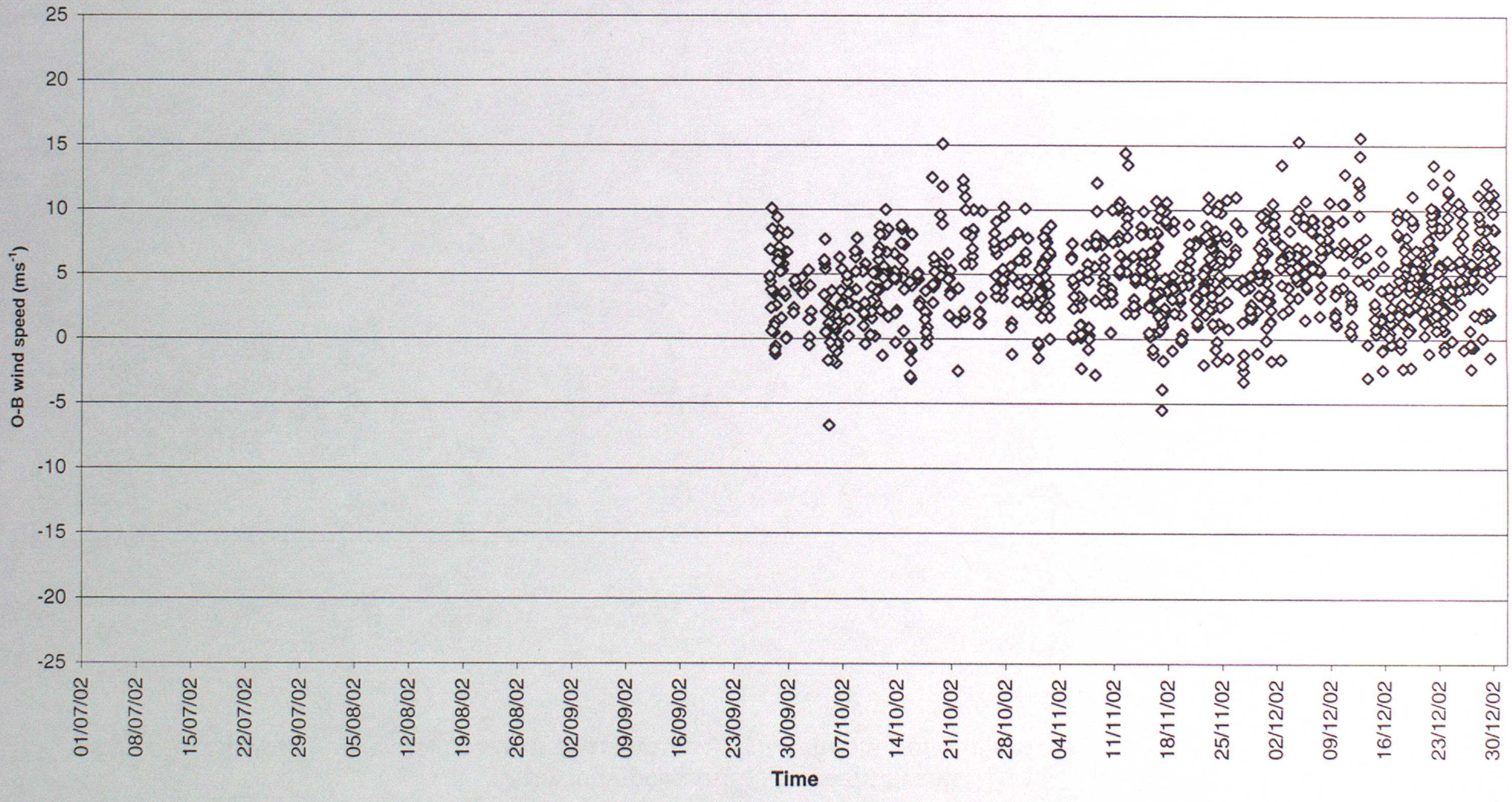




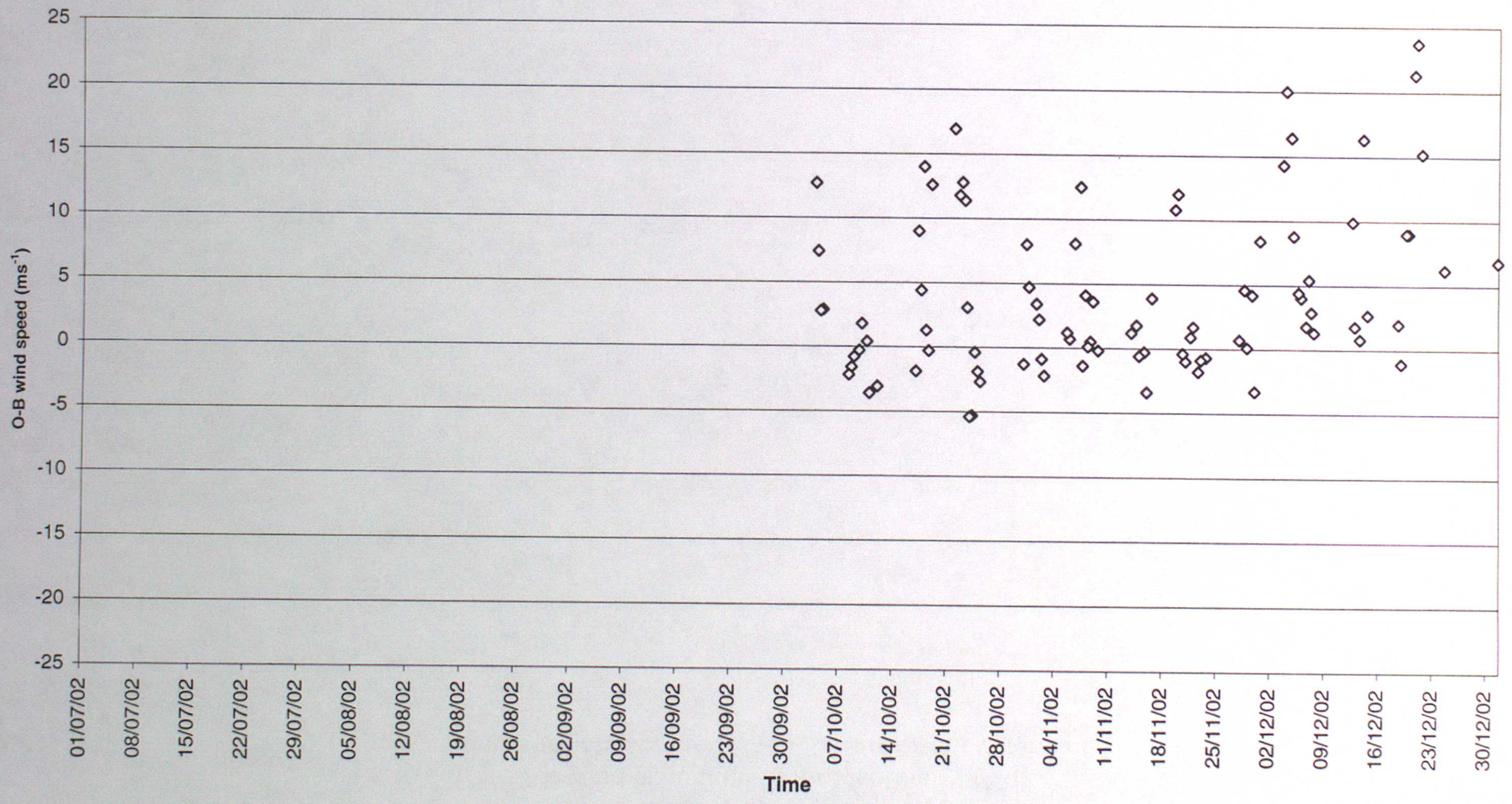
O-B wind speed (ms^{-1}) for identifier VLST

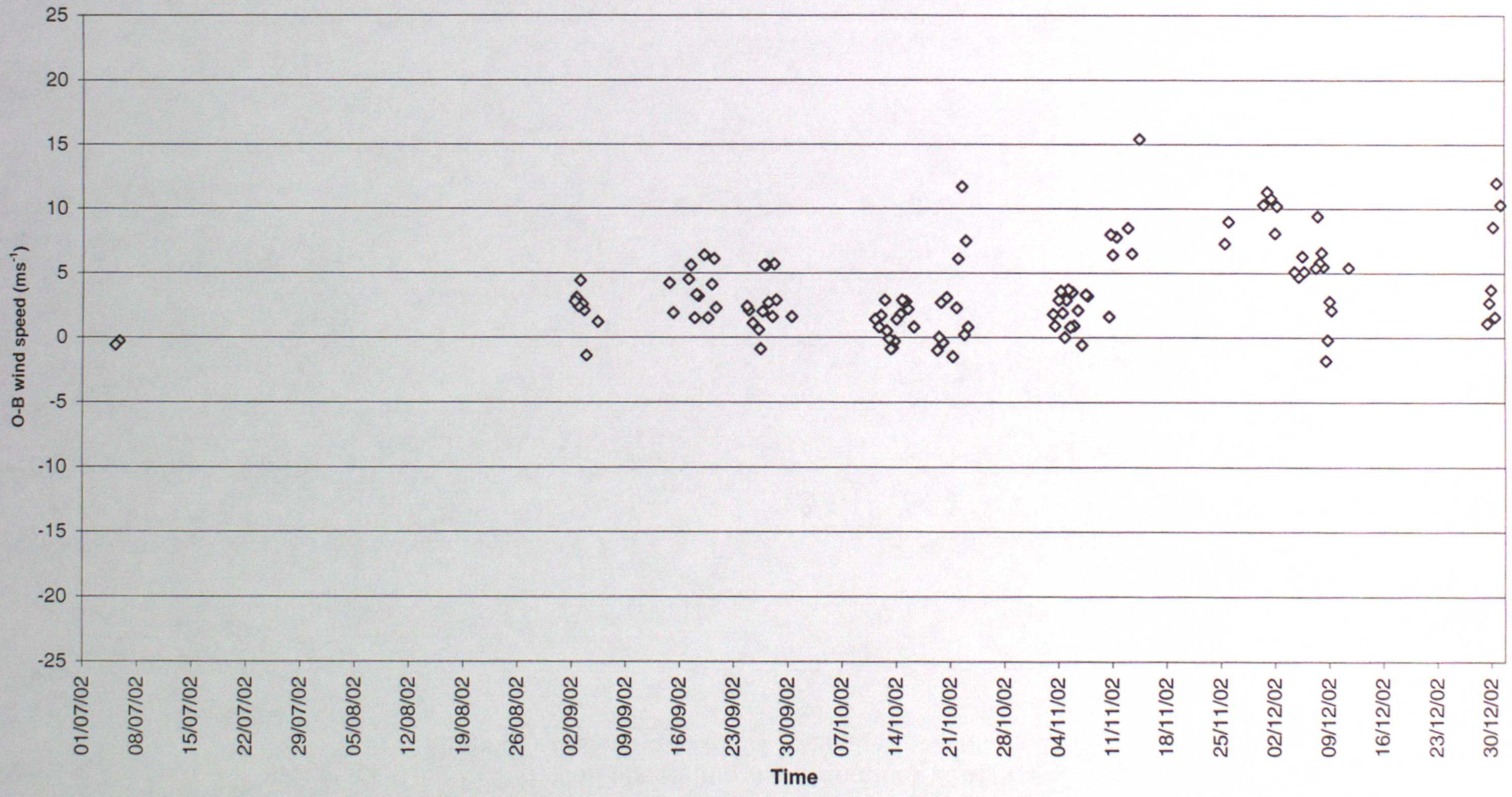
Number of obs. plotted = 449   Number of outliers = 0

O-B wind speed (ms^{-1}) for identifier VNSZ
Number of obs. plotted = 916   Number of outliers = 0

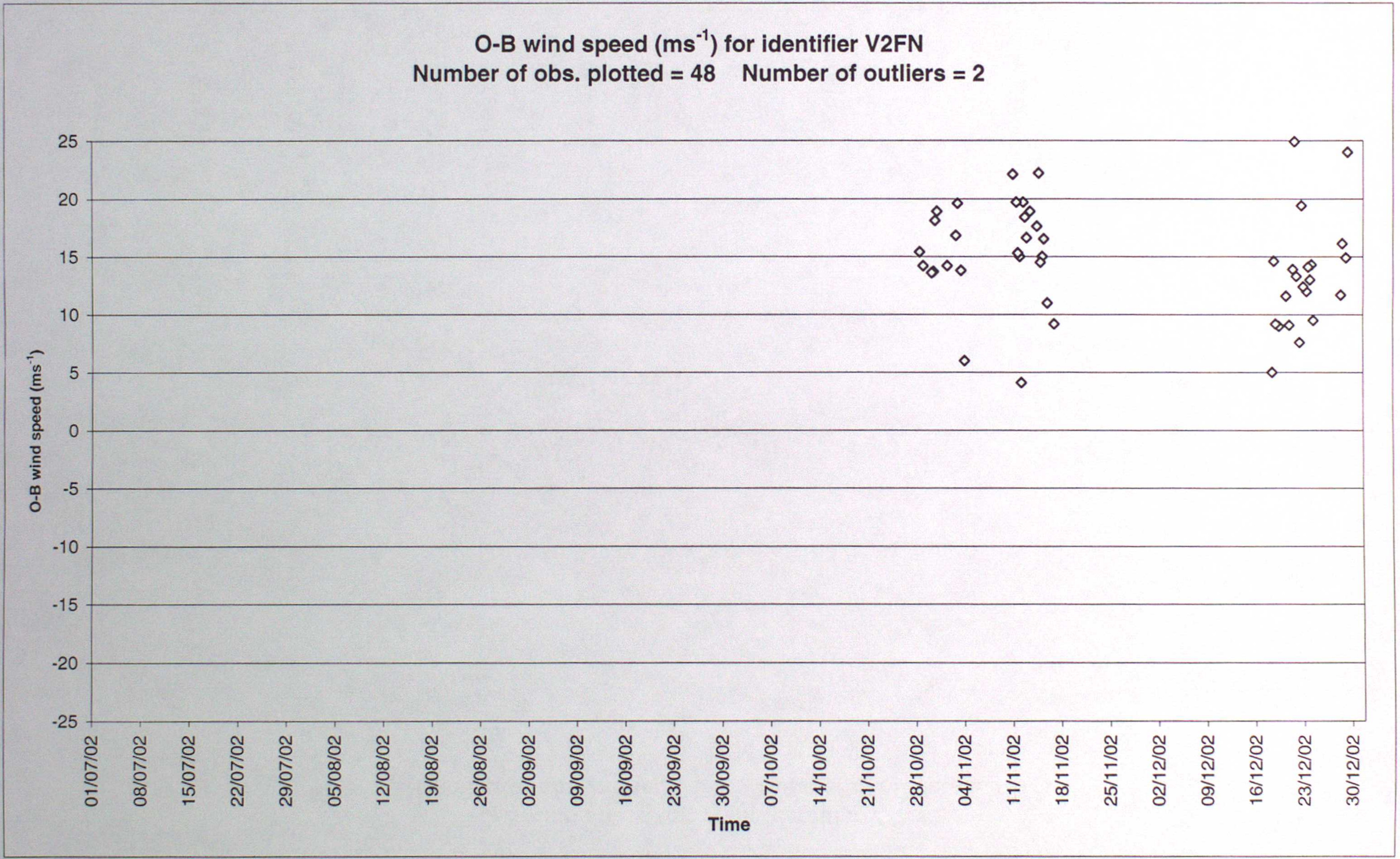


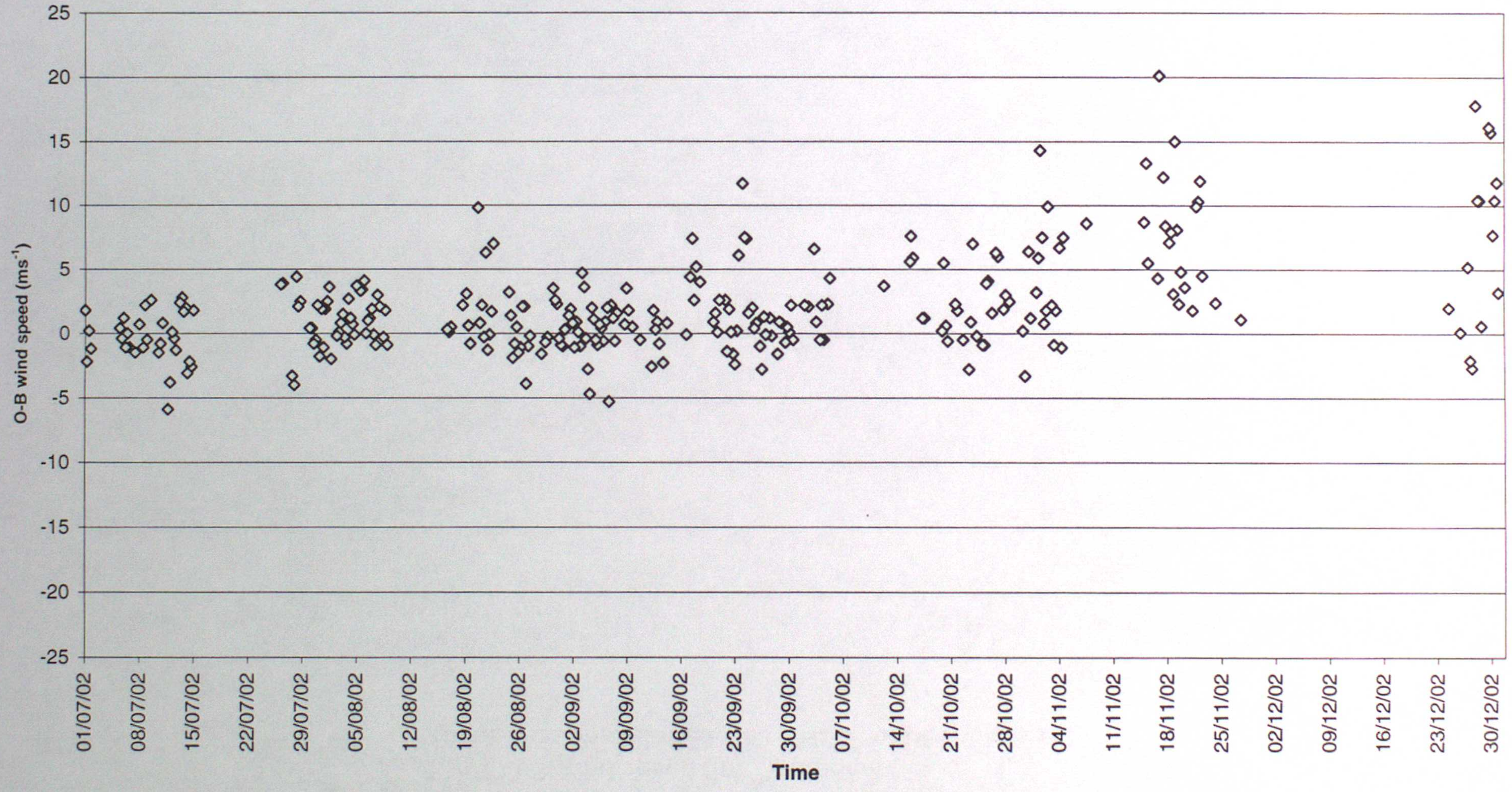
O-B wind speed (ms^{-1}) for identifier V2AQ3
Number of obs. plotted = 91   Number of outliers = 1



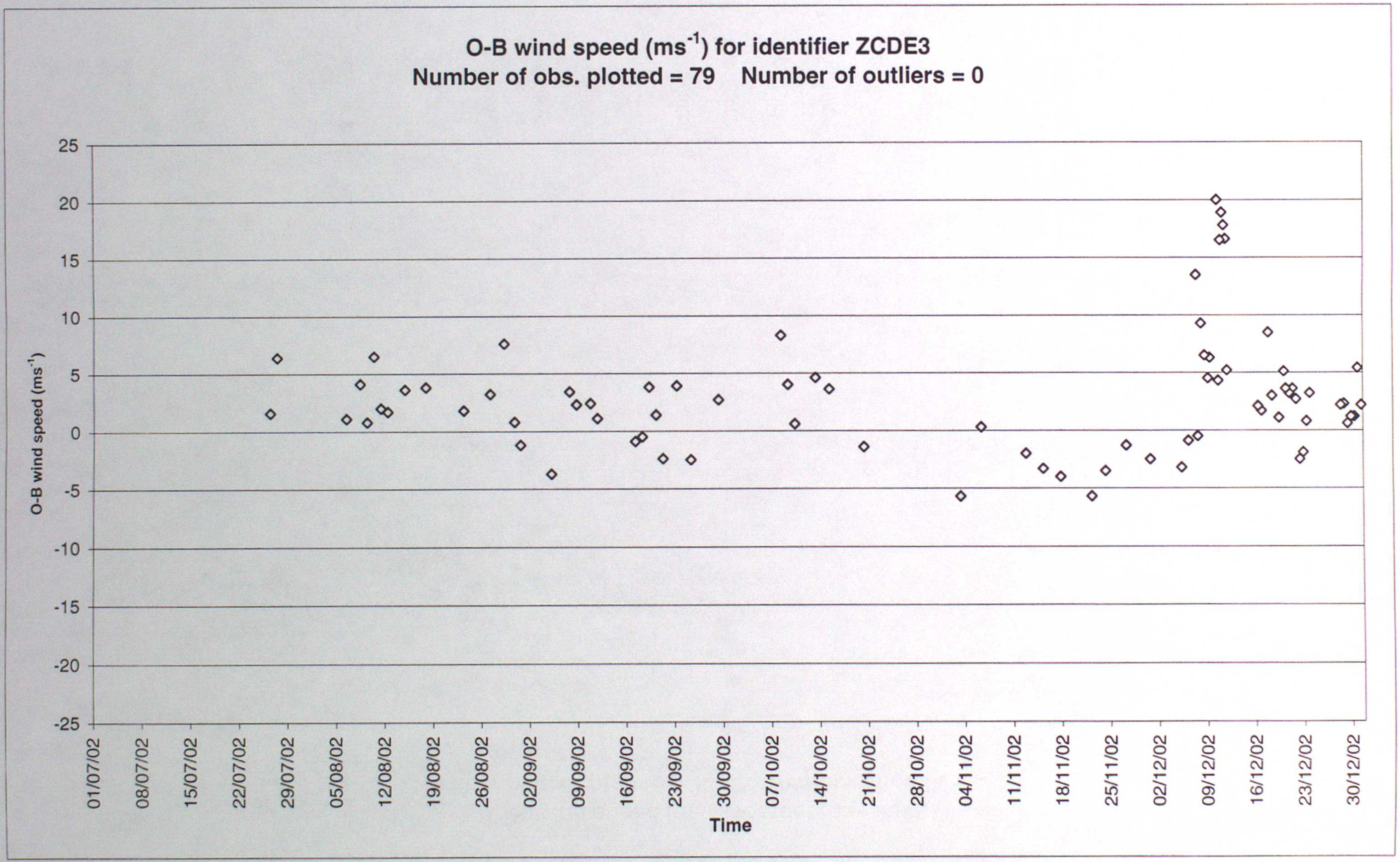


O-B wind speed (ms^{-1}) for identifier V2AZ5
Number of obs. plotted = 113 Number of outliers = 0


O-B wind speed (ms^{-1}) for identifier V2FN
Number of obs. plotted = 48   Number of outliers = 2

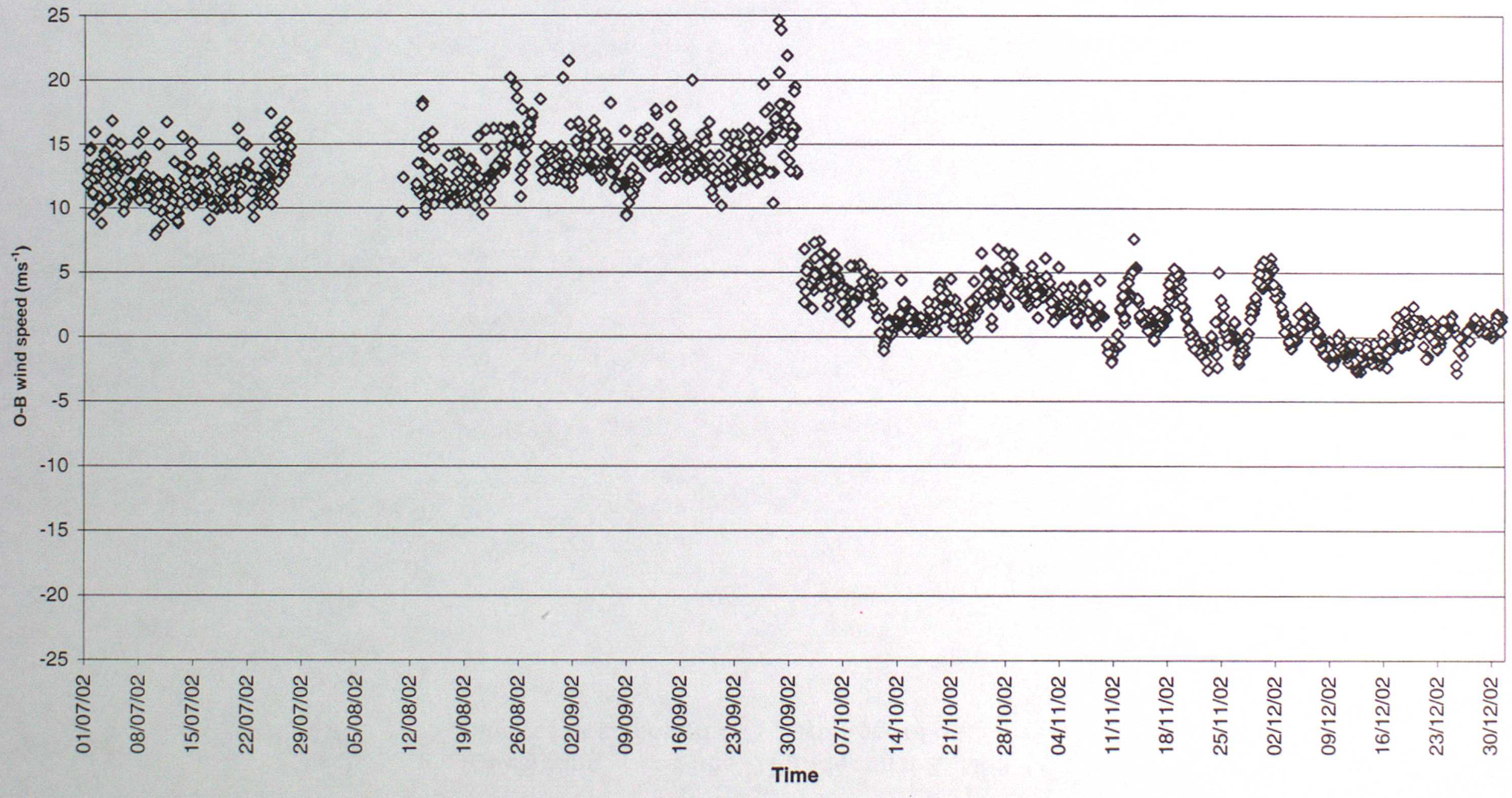


O-B wind speed (ms^{-1}) for identifier V7AY2
Number of obs. plotted = 282   Number of outliers = 0

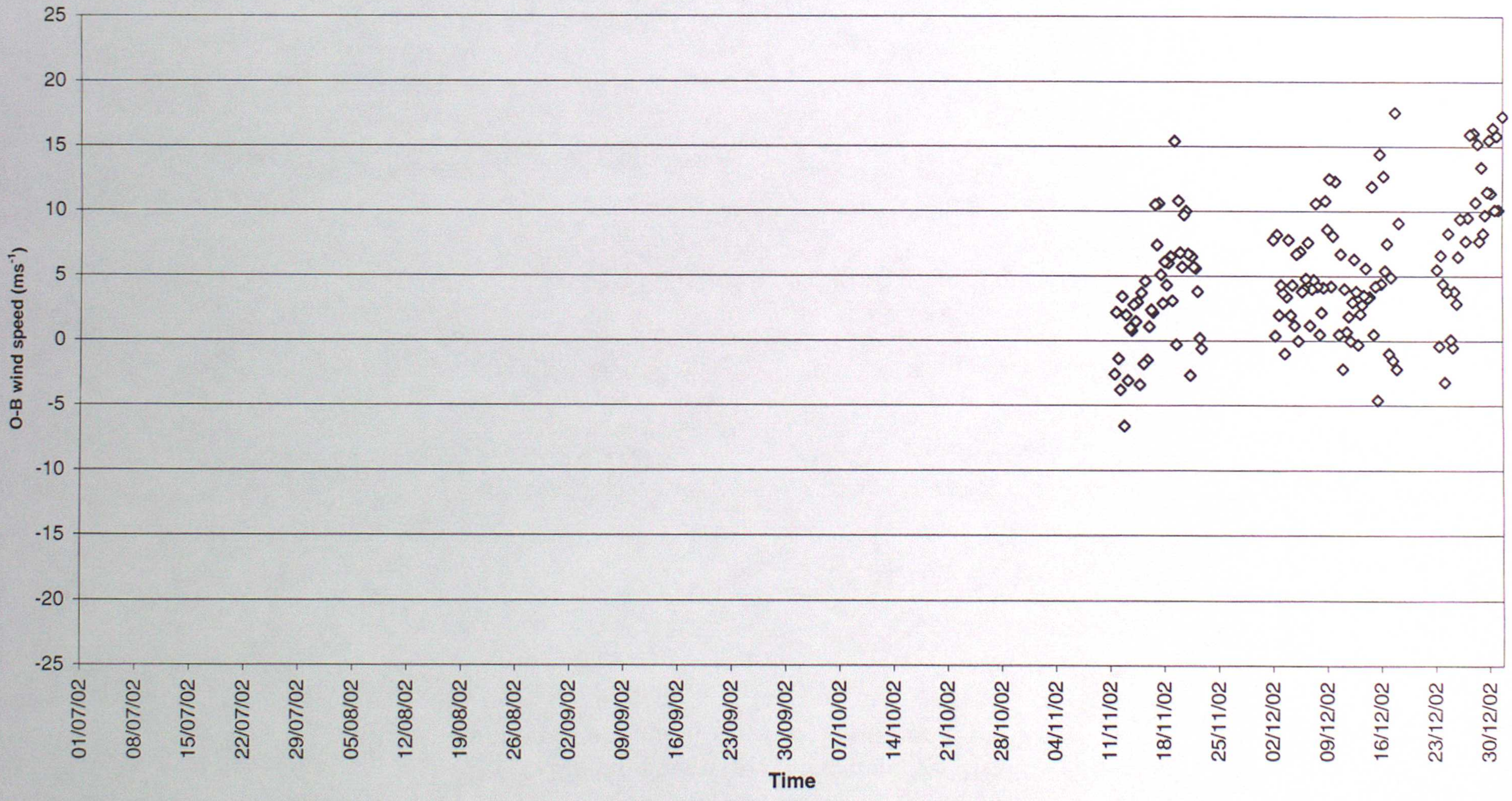


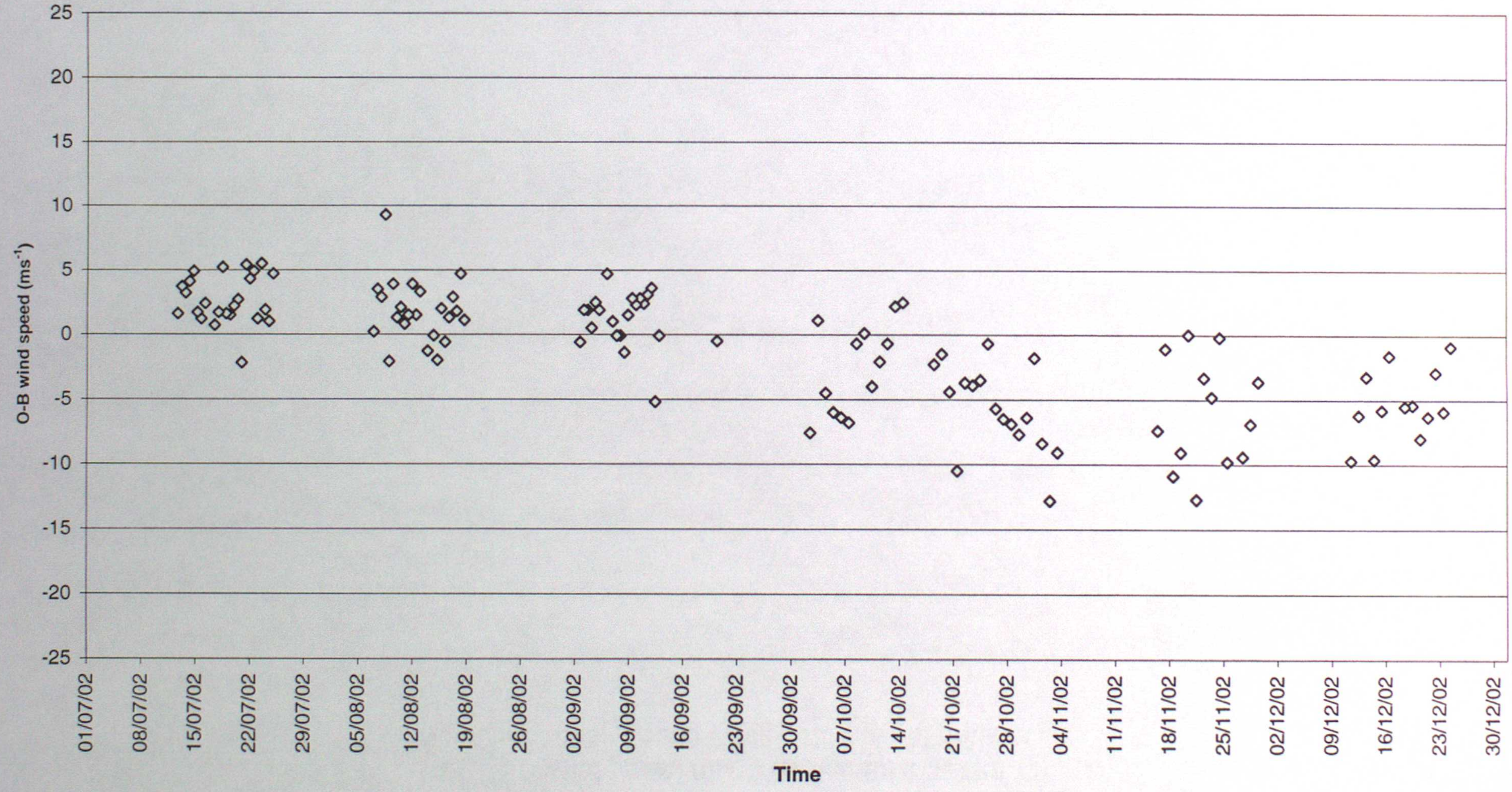
O-B wind speed (ms^{-1}) for identifier ZCDE3
Number of obs. plotted = 79   Number of outliers = 0

O-B wind speed (ms^{-1}) for identifier 23924
Number of obs. plotted = 1342   Number of outliers = 0



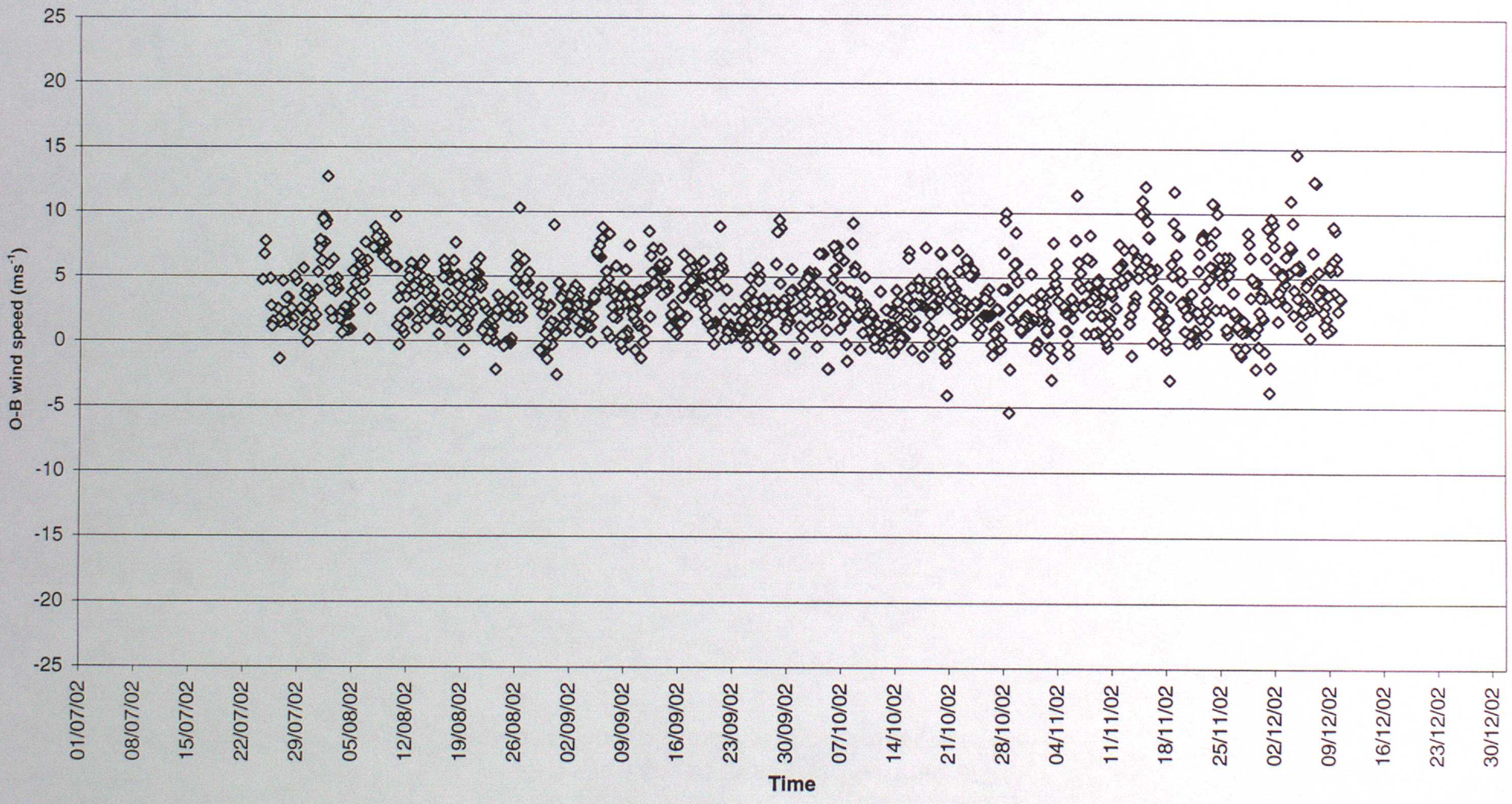
O-B wind speed (ms^{-1}) for identifier 3ETX6
Number of obs. plotted = 142   Number of outliers = 0



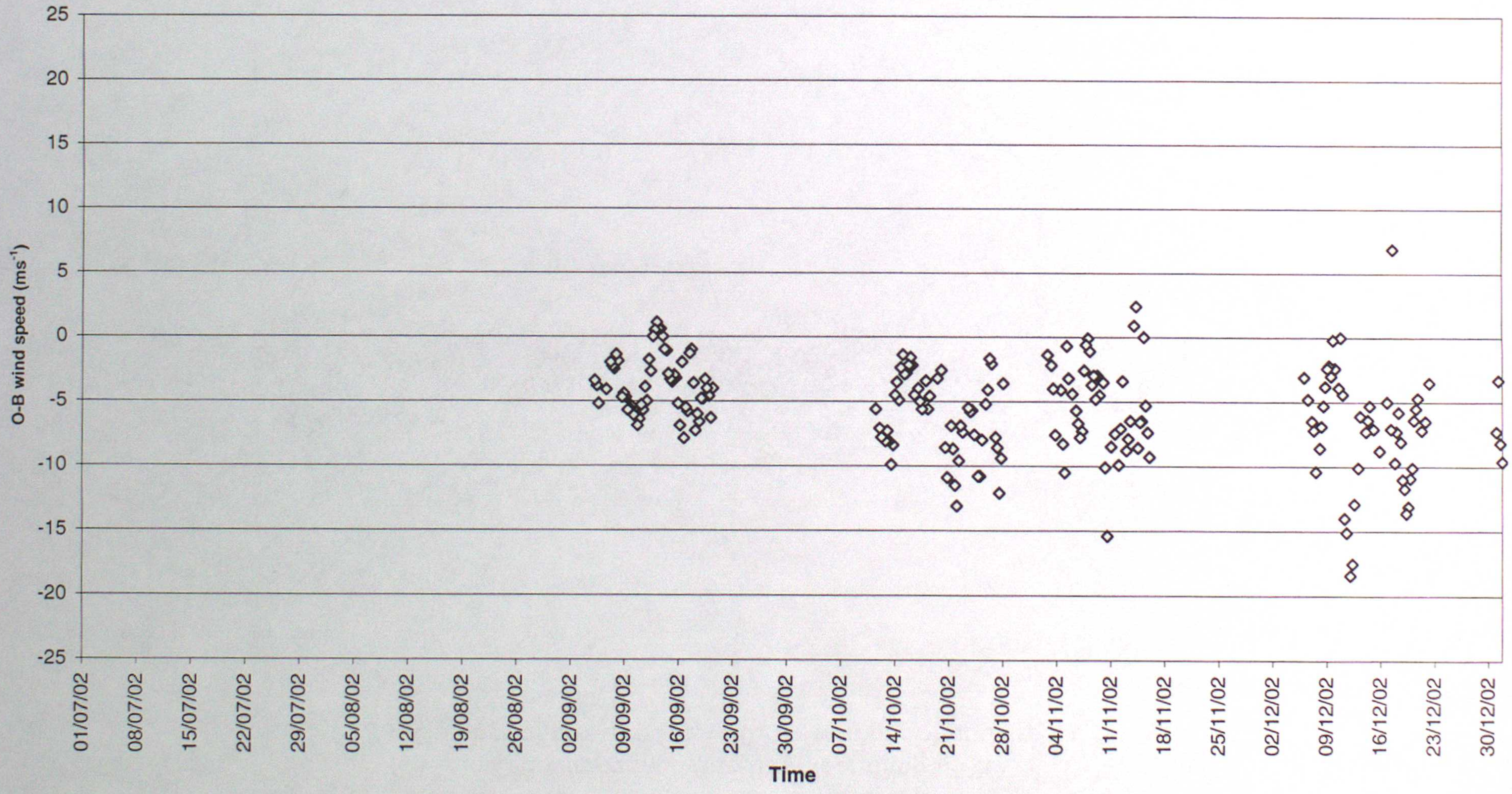


O-B wind speed (ms^{-1}) for identifier 3FAP5
Number of obs. plotted = 124   Number of outliers = 0

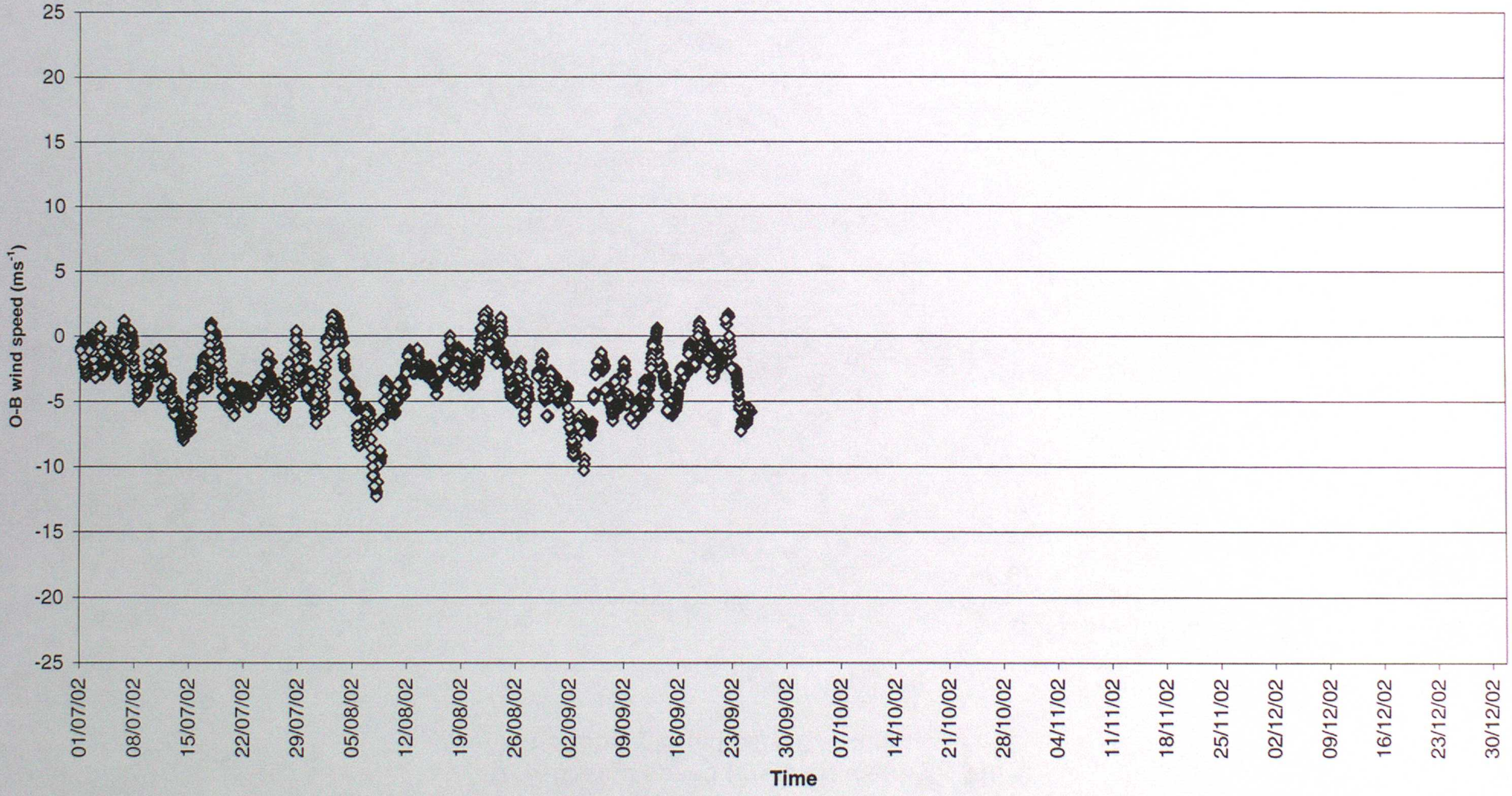
O-B wind speed (ms^{-1}) for identifier 3FPK7
Number of obs. plotted = 1021   Number of outliers = 0



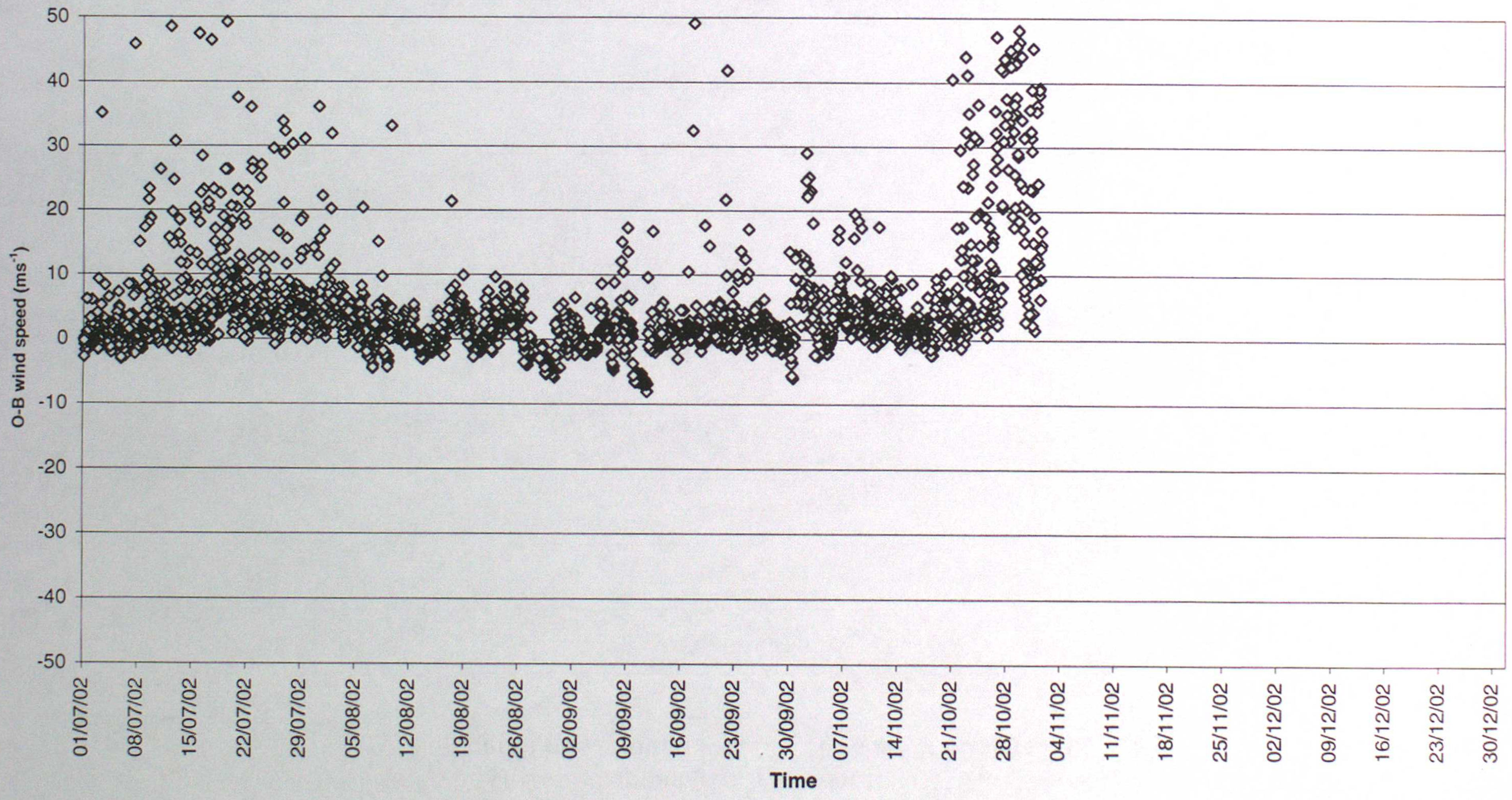
O-B wind speed (ms^{-1}) for identifier 3FZM
Number of obs. plotted = 203   Number of outliers = 0

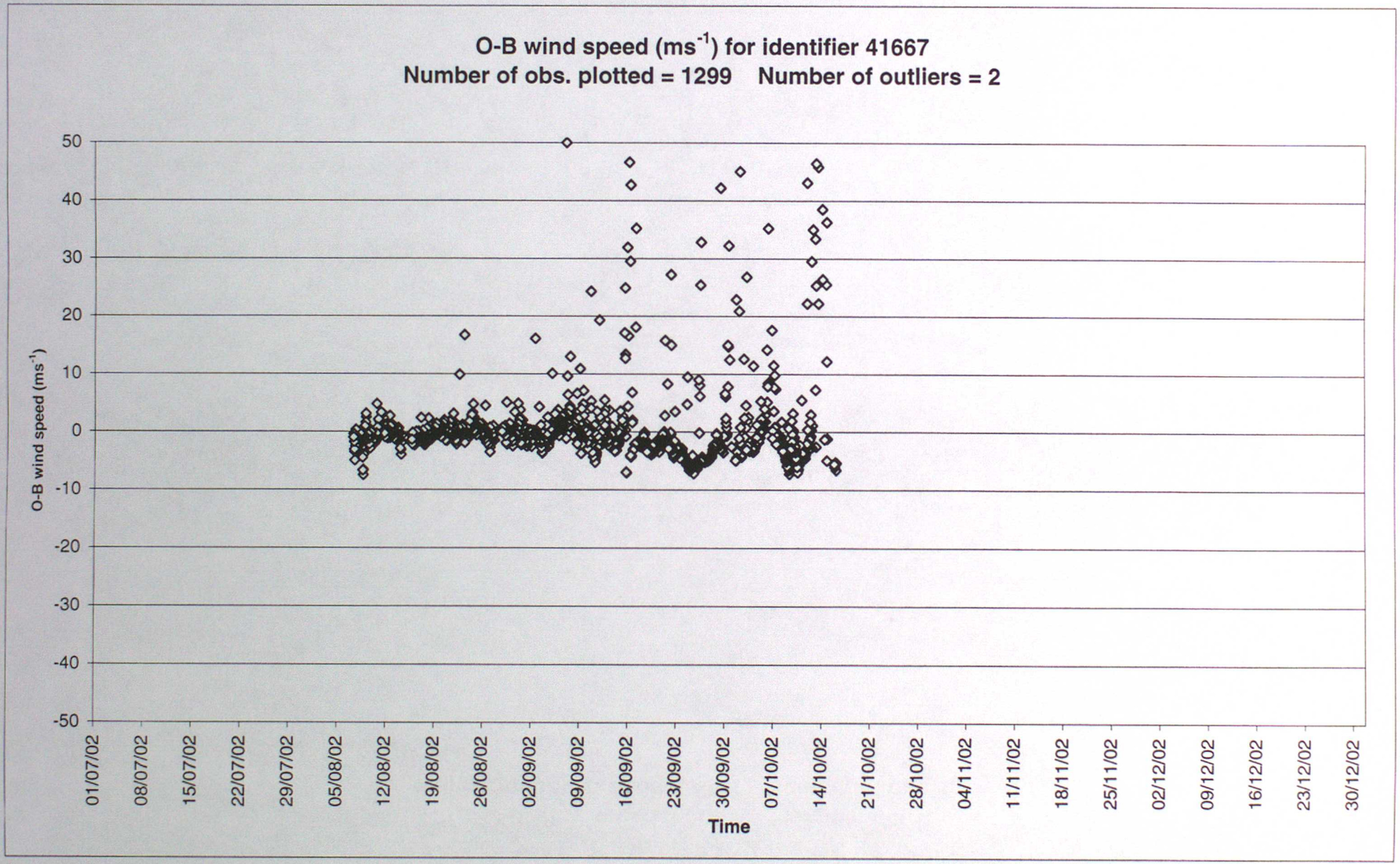


O-B wind speed (ms^{-1}) for identifier 41645
Number of obs. plotted = 1726   Number of outliers = 0

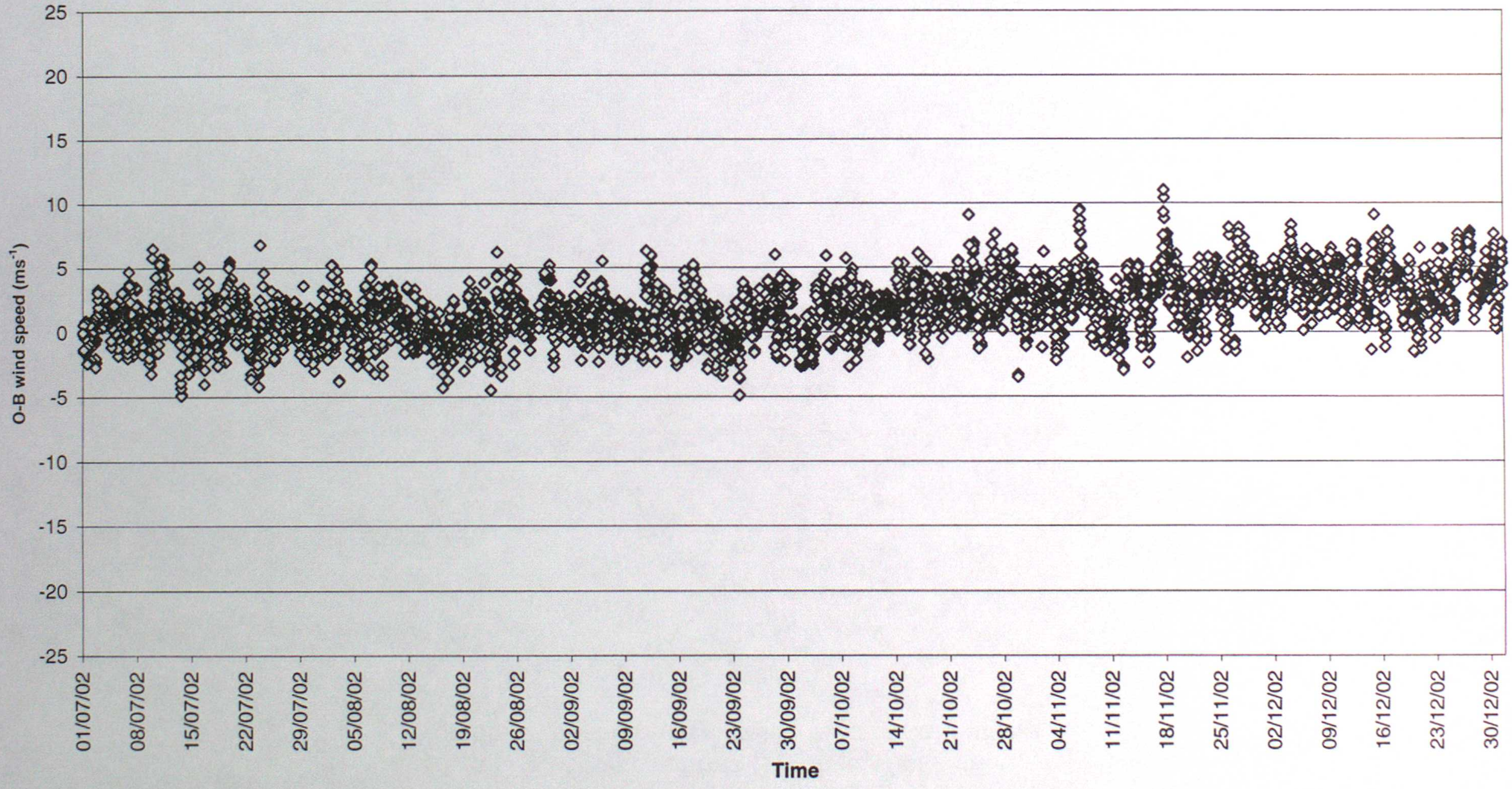


O-B wind speed (ms^{-1}) for identifier 41652
Number of obs. plotted = 2714   Number of outliers = 6

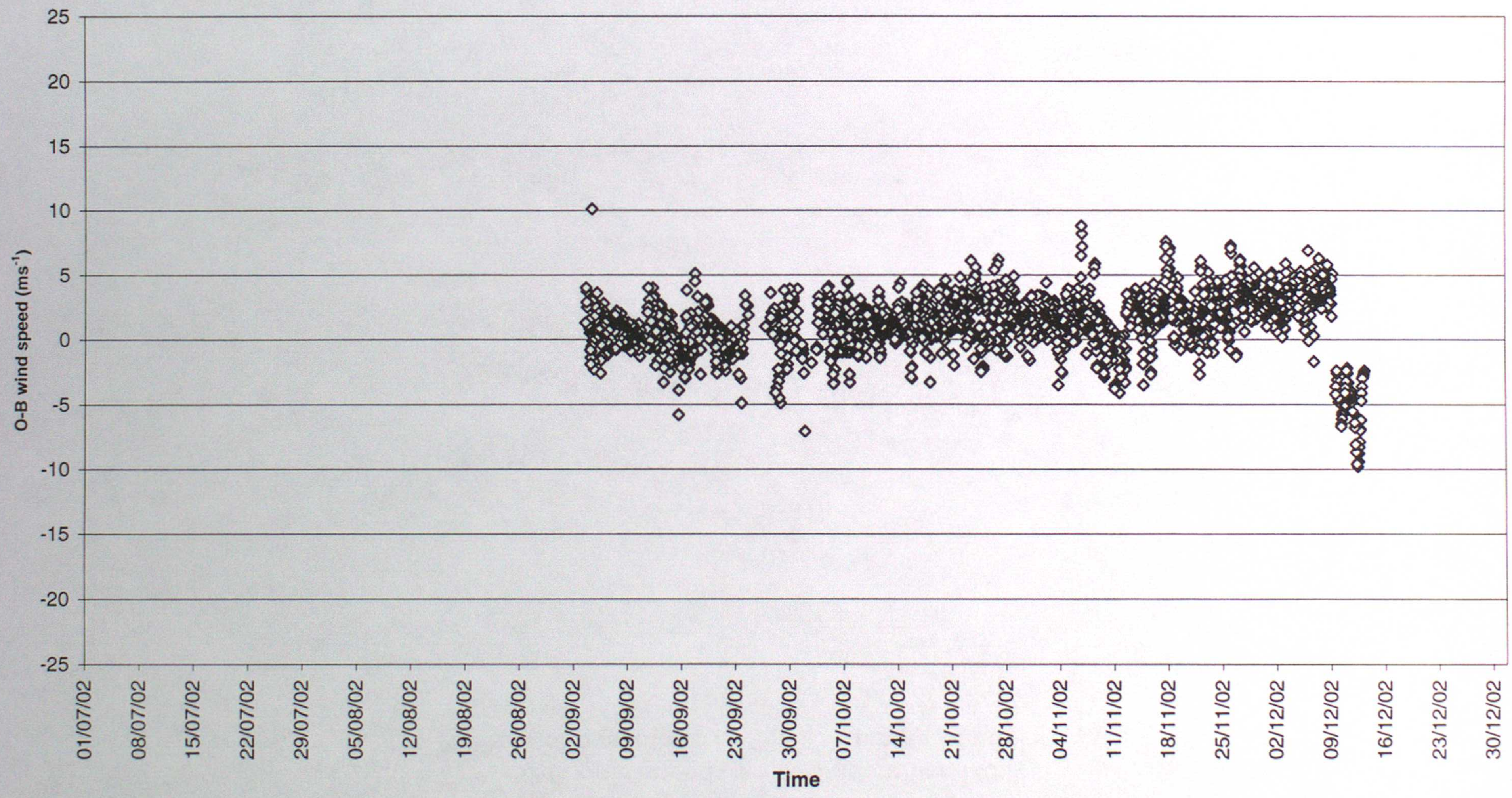


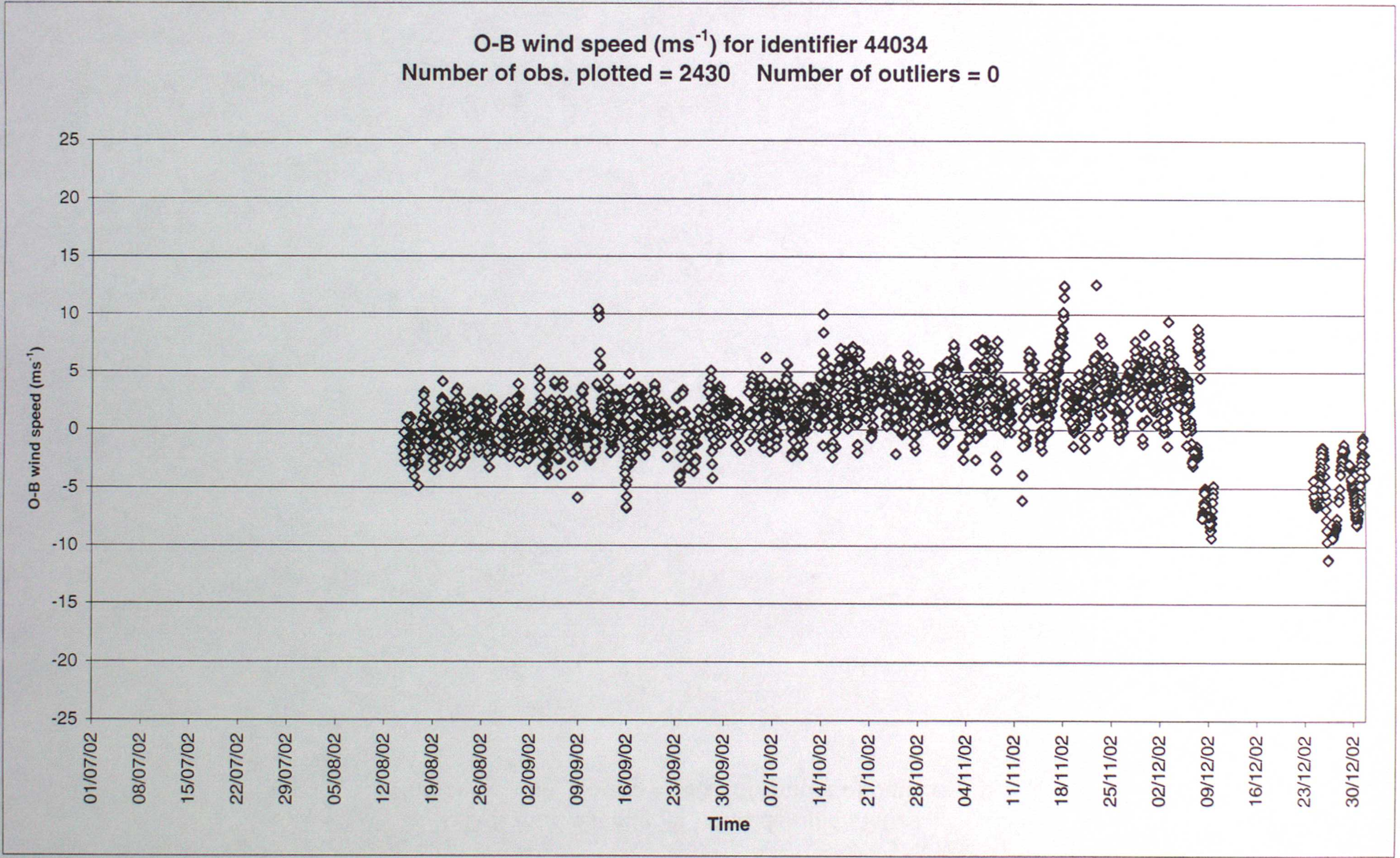

O-B wind speed (ms^{-1}) for identifier 41667
Number of obs. plotted = 1299   Number of outliers = 2
O-B wind speed (ms^{-1})
50
40
30
20
10
0
-10
-20
-30
-40
-50
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

O-B wind speed (ms^{-1}) for identifier 44013
Number of obs. plotted = 4303   Number of outliers = 0



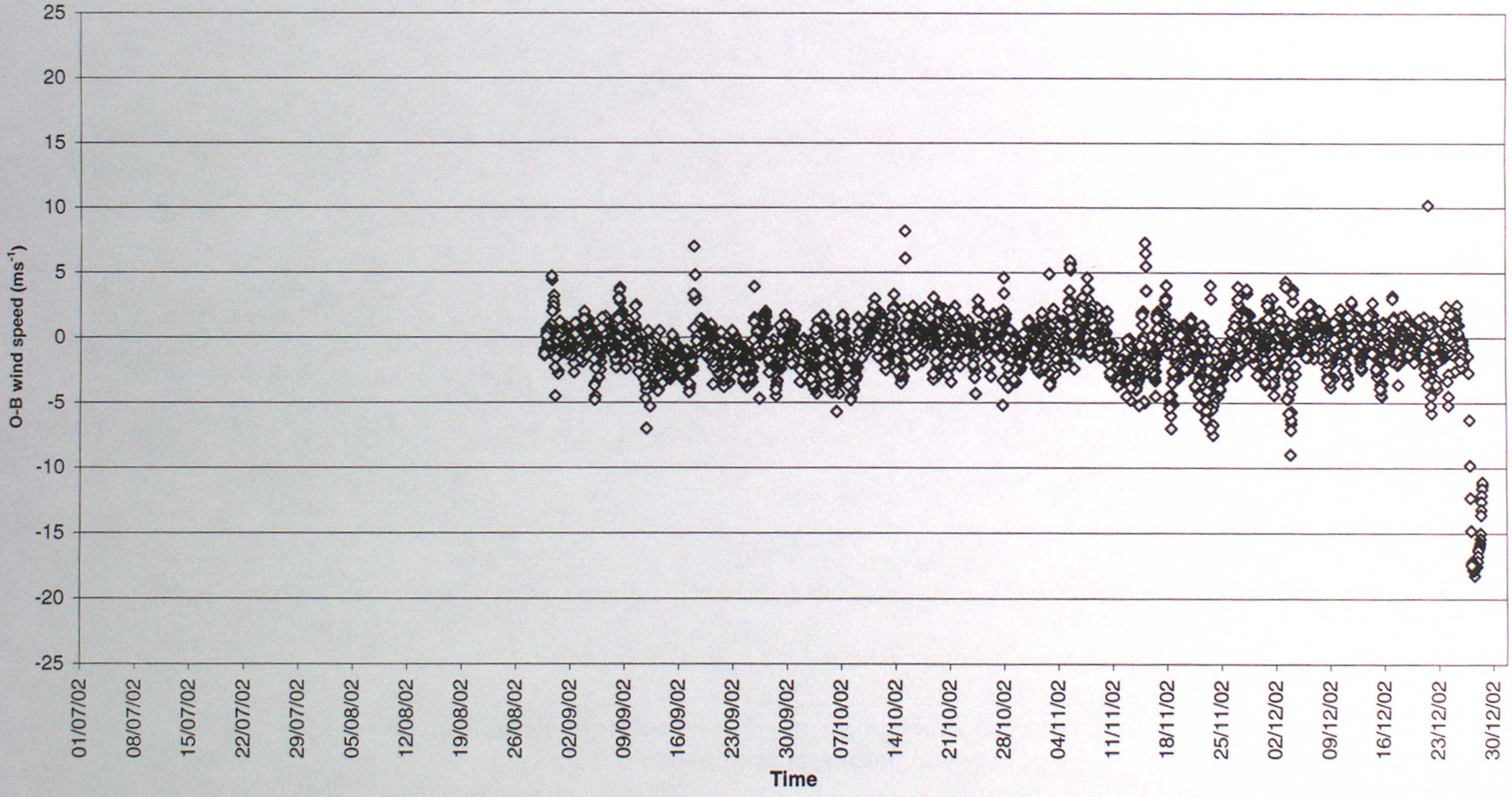
O-B wind speed (ms^{-1}) for identifier 44029
Number of obs. plotted = 1837   Number of outliers = 0

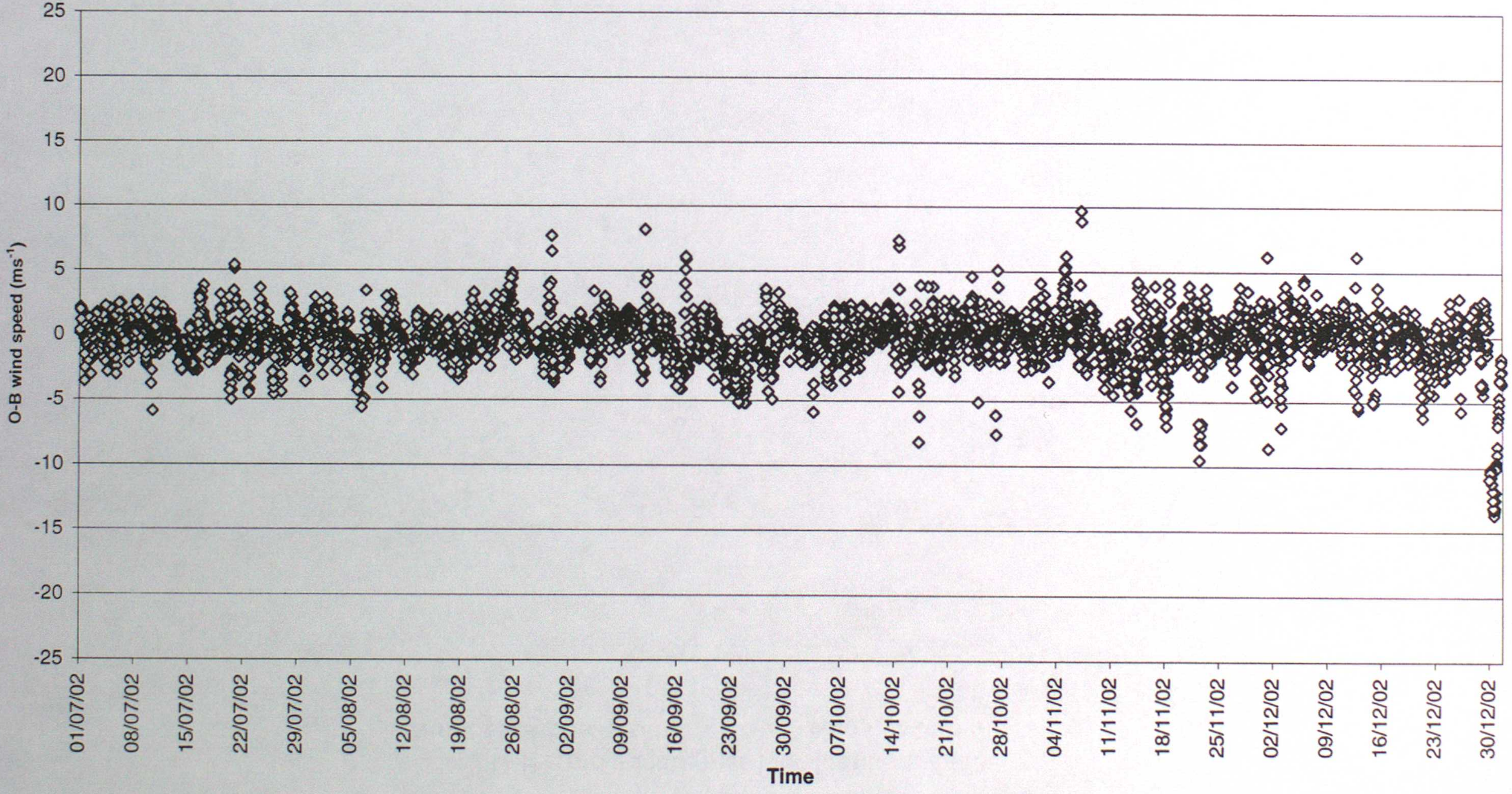




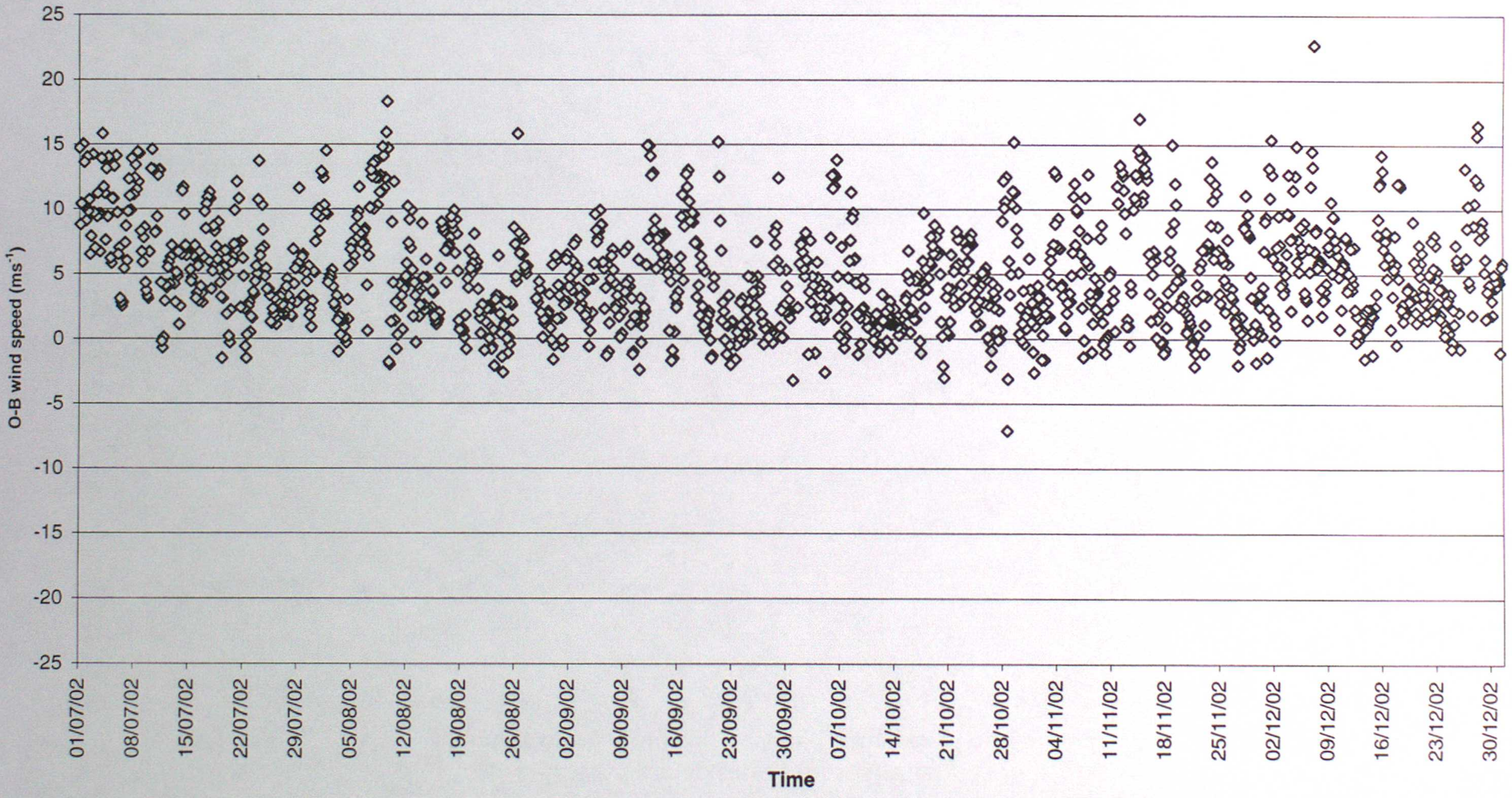
O-B wind speed (ms^{-1}) for identifier 44034
Number of obs. plotted = 2430   Number of outliers = 0

O-B wind speed (ms^{-1}) for identifier 44139
Number of obs. plotted = 2790   Number of outliers = 0

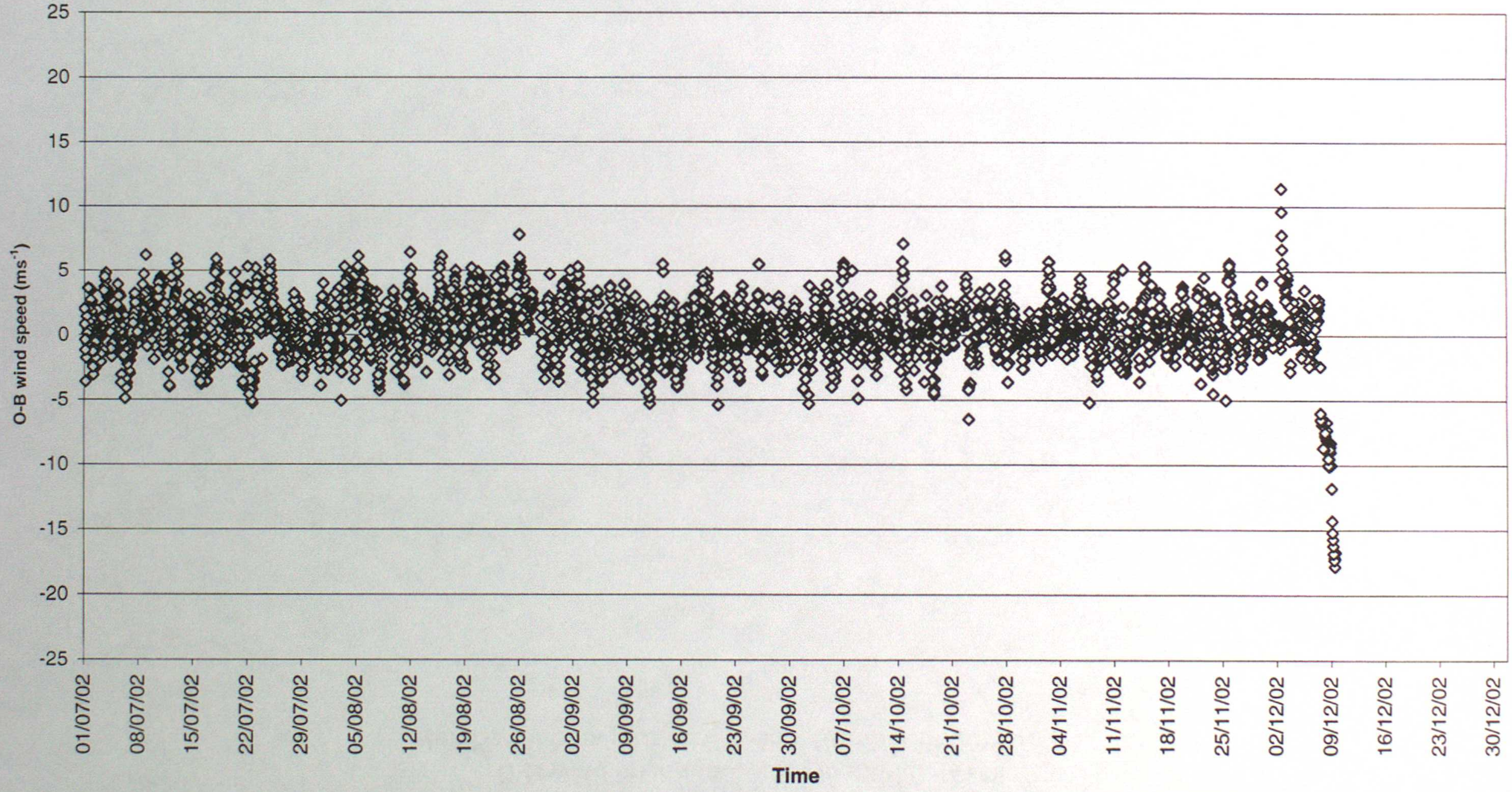


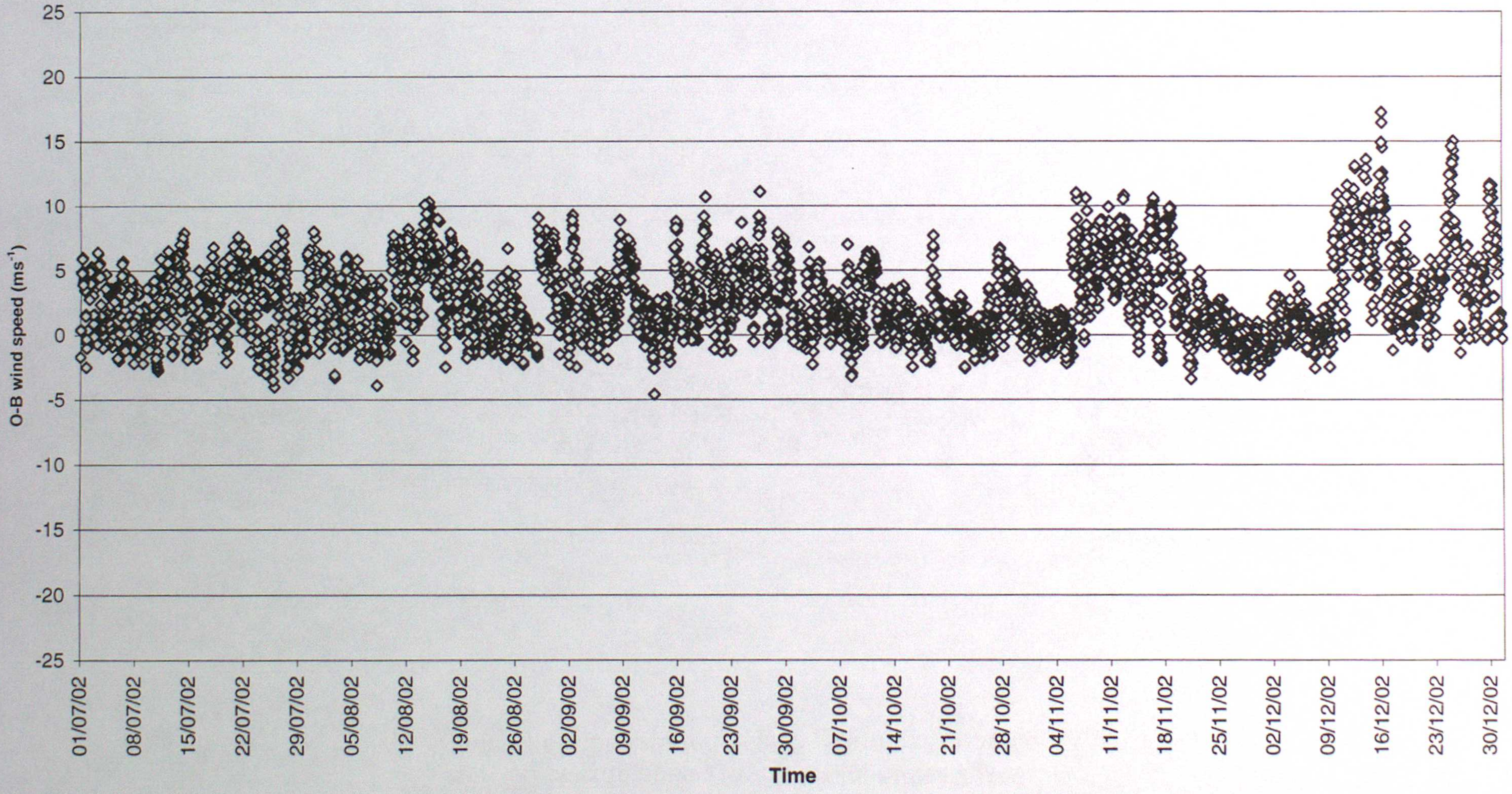

O-B wind speed (ms^{-1}) for identifier 44142
Number of obs. plotted = 4312 Number of outliers = 0

O-B wind speed (ms^{-1}) for identifier 44145
Number of obs. plotted = 1395   Number of outliers = 1

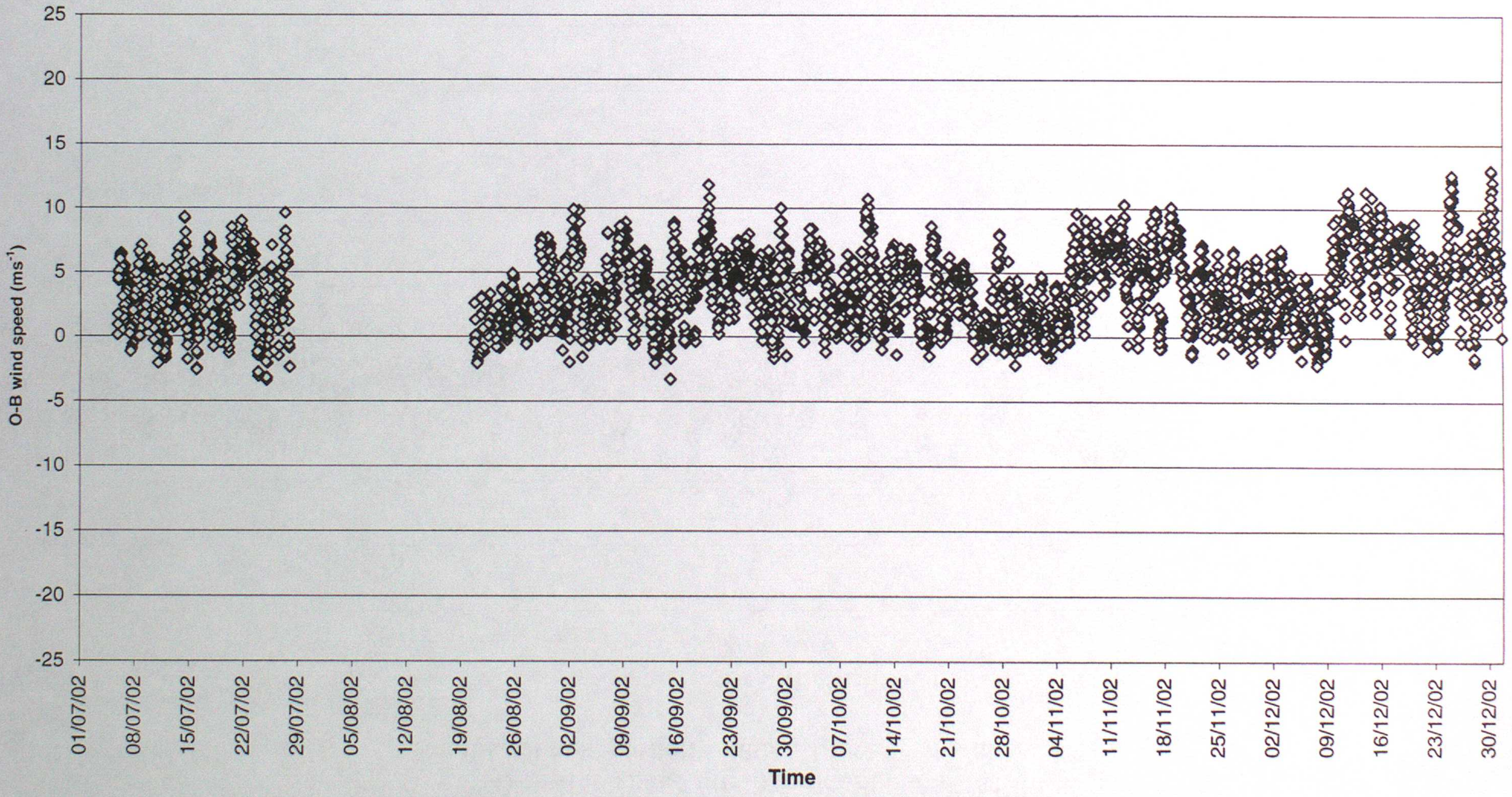


O-B wind speed (ms^{-1}) for identifier 45138
Number of obs. plotted = 3513   Number of outliers = 0

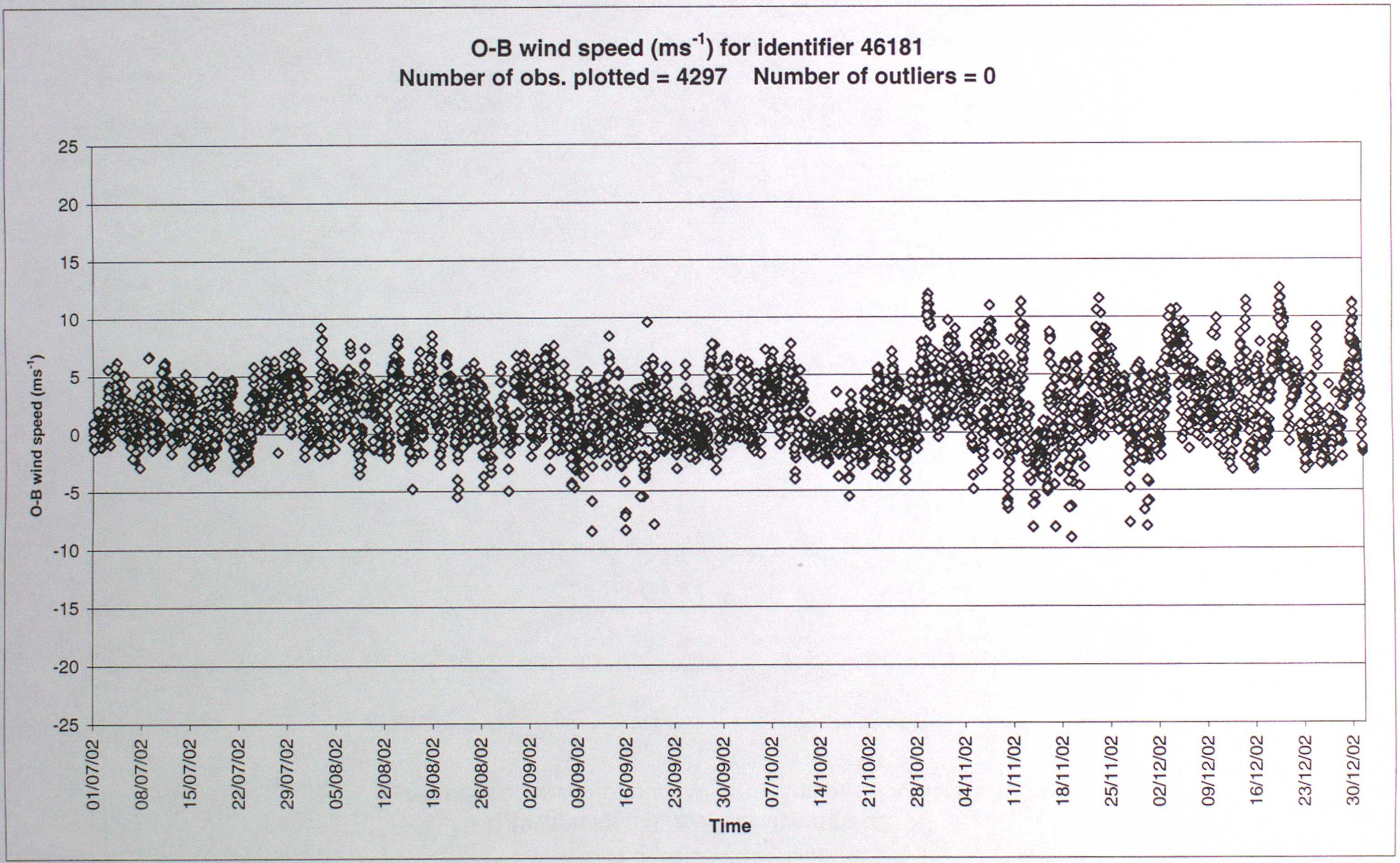




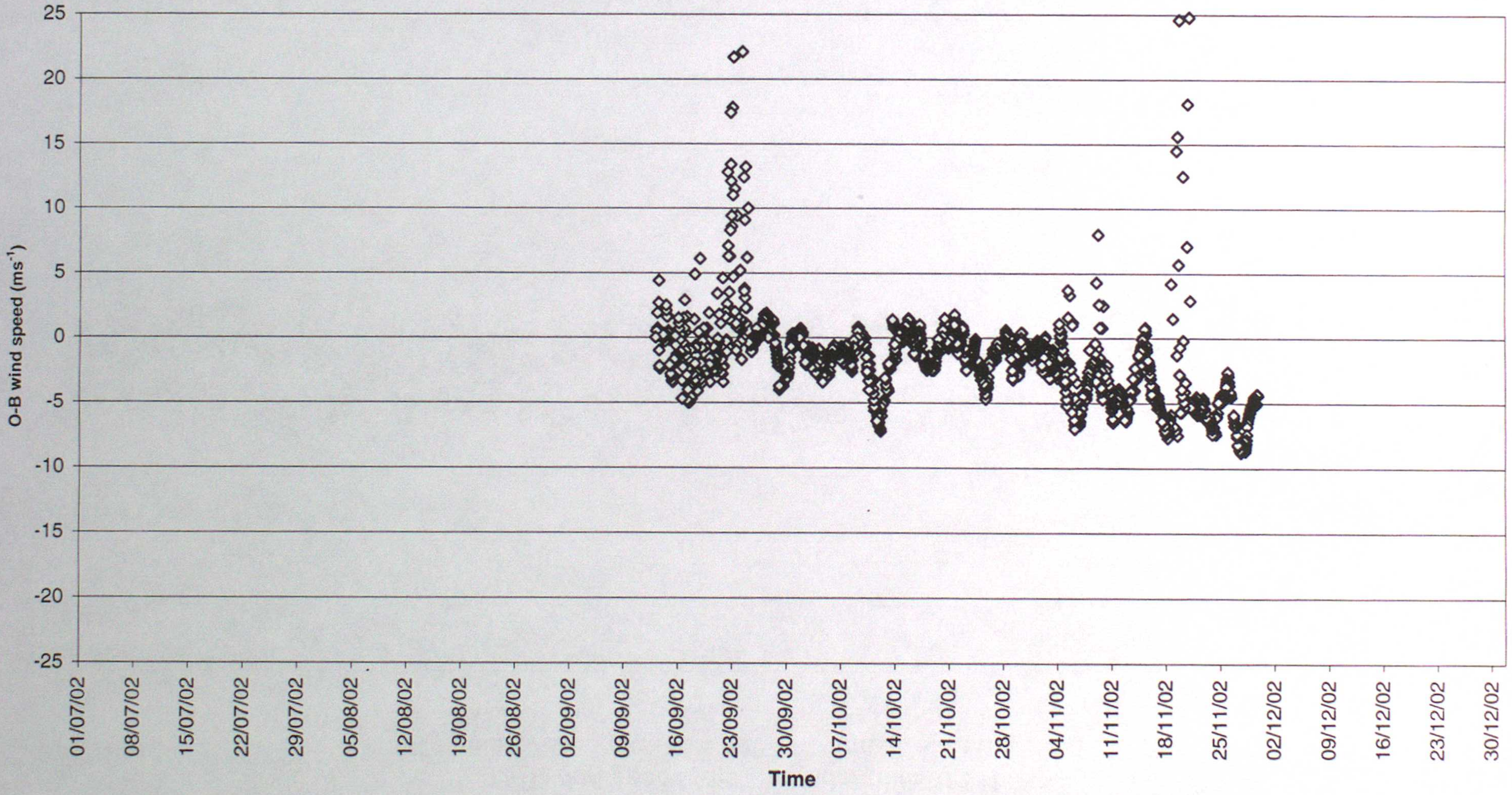
O-B wind speed (ms^{-1}) for identifier 46131
Number of obs. plotted = 4304   Number of outliers = 0



O-B wind speed (ms^{-1}) for identifier 46146
Number of obs. plotted = 3596   Number of outliers = 0



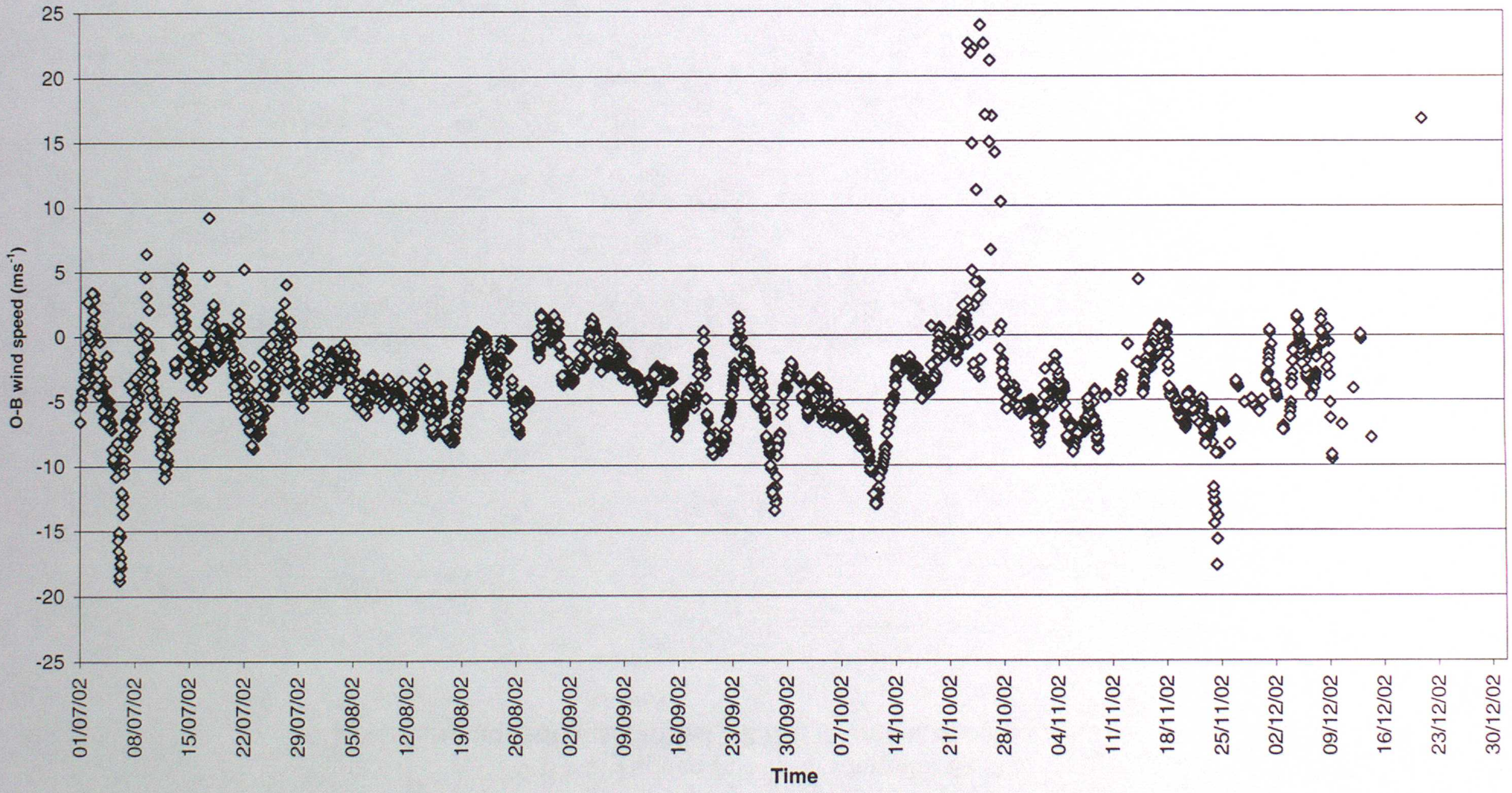
O-B wind speed (ms^{-1}) for identifier 46181
Number of obs. plotted = 4297   Number of outliers = 0



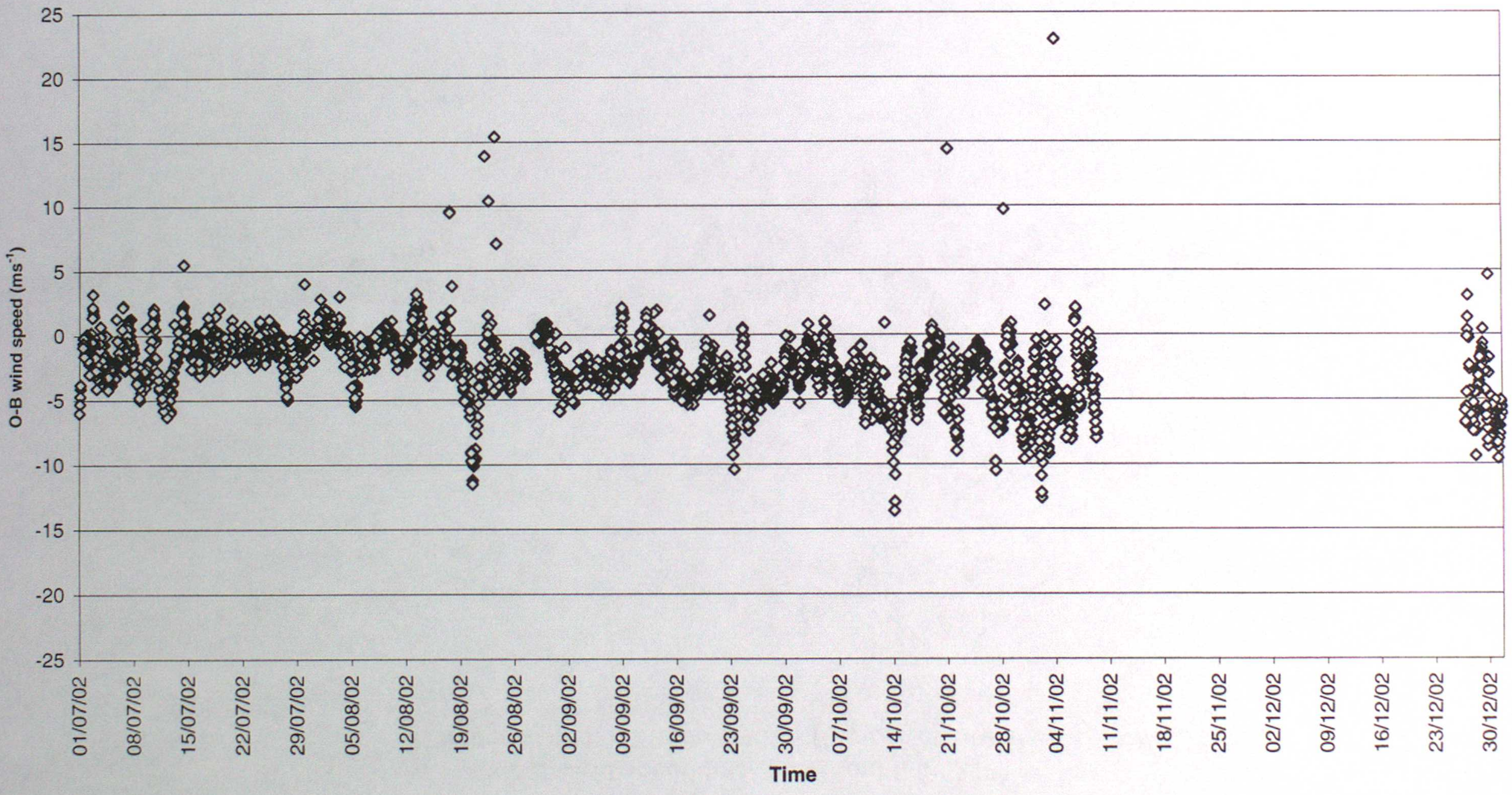
O-B wind speed (ms^{-1}) for identifier 52513

Number of obs. plotted = 1406   Number of outliers = 13

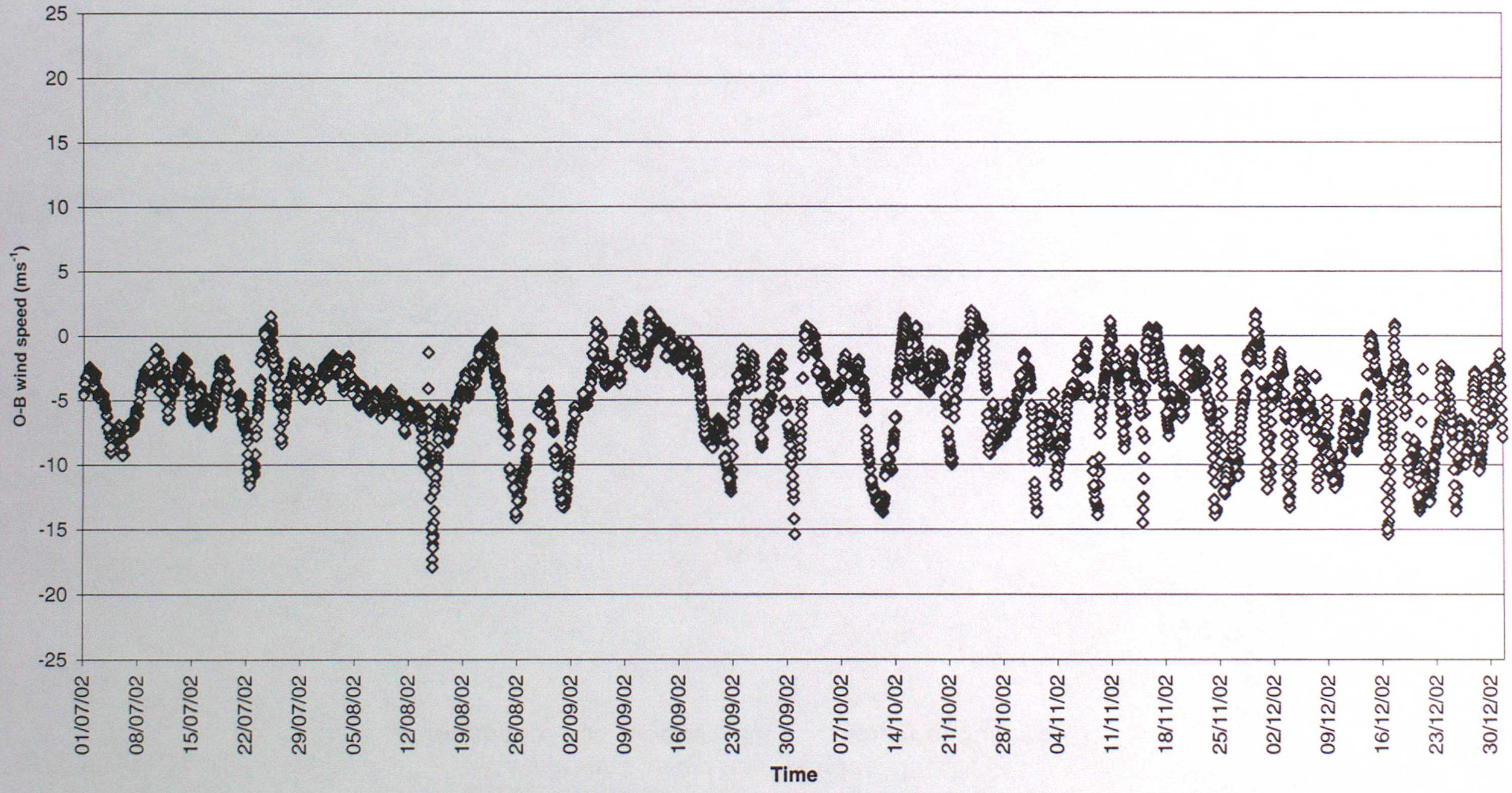
O-B wind speed (ms^{-1}) for identifier 52529
Number of obs. plotted = 2401   Number of outliers = 15

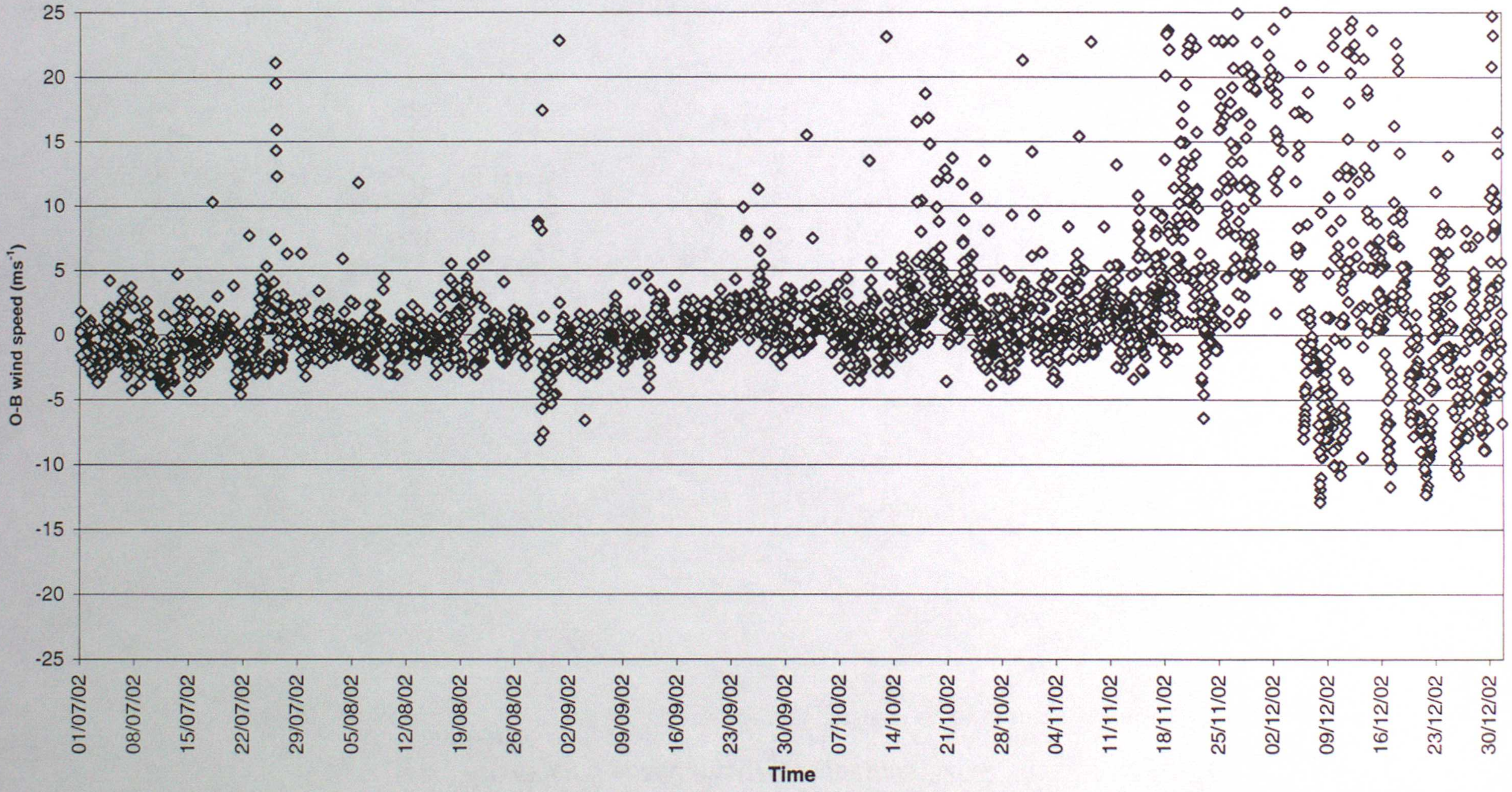


O-B wind speed (ms^{-1}) for identifier 52533
Number of obs. plotted = 2672   Number of outliers = 0



O-B wind speed (ms^{-1}) for identifier 52537
Number of obs. plotted = 3735   Number of outliers = 0

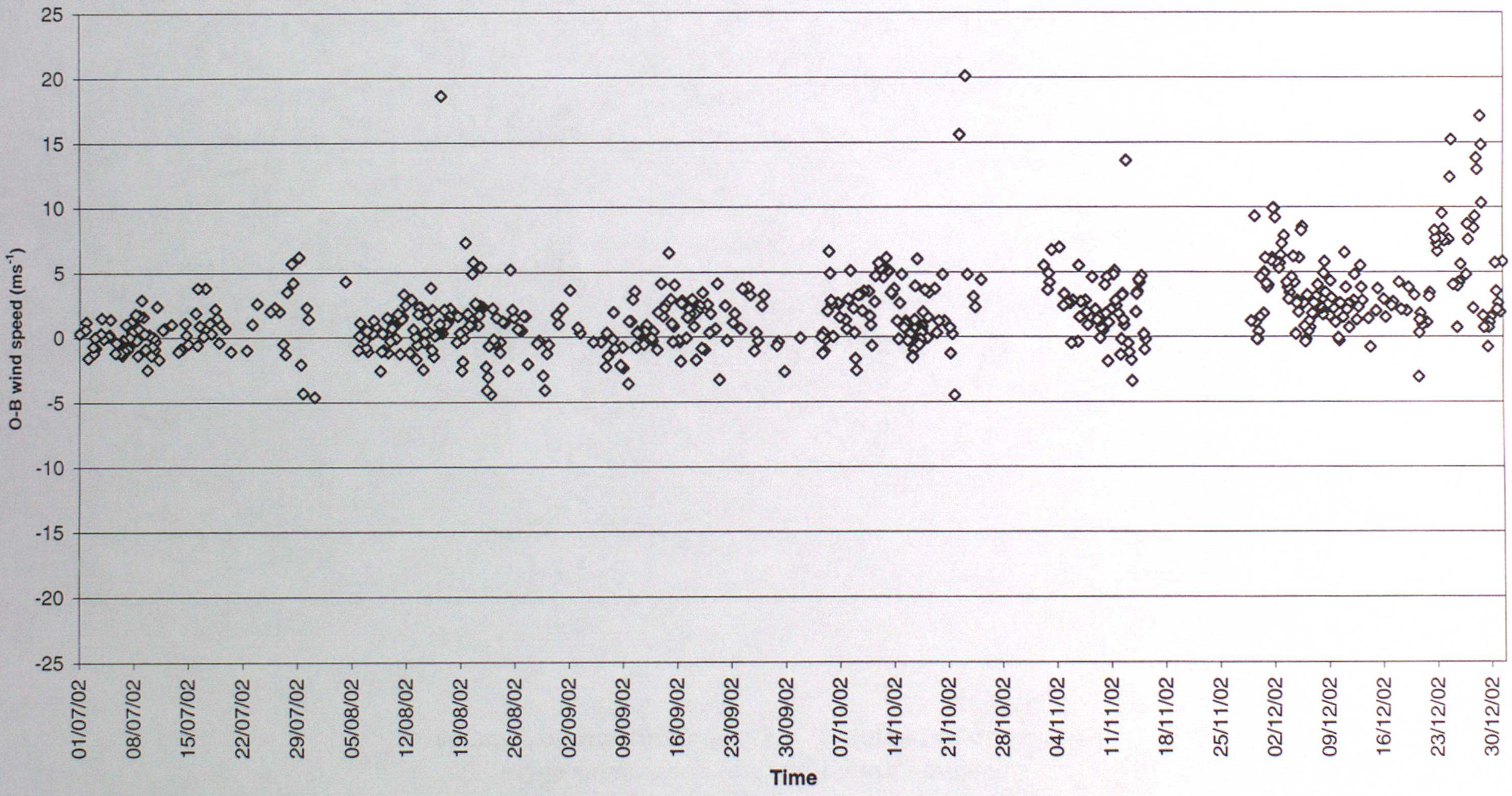


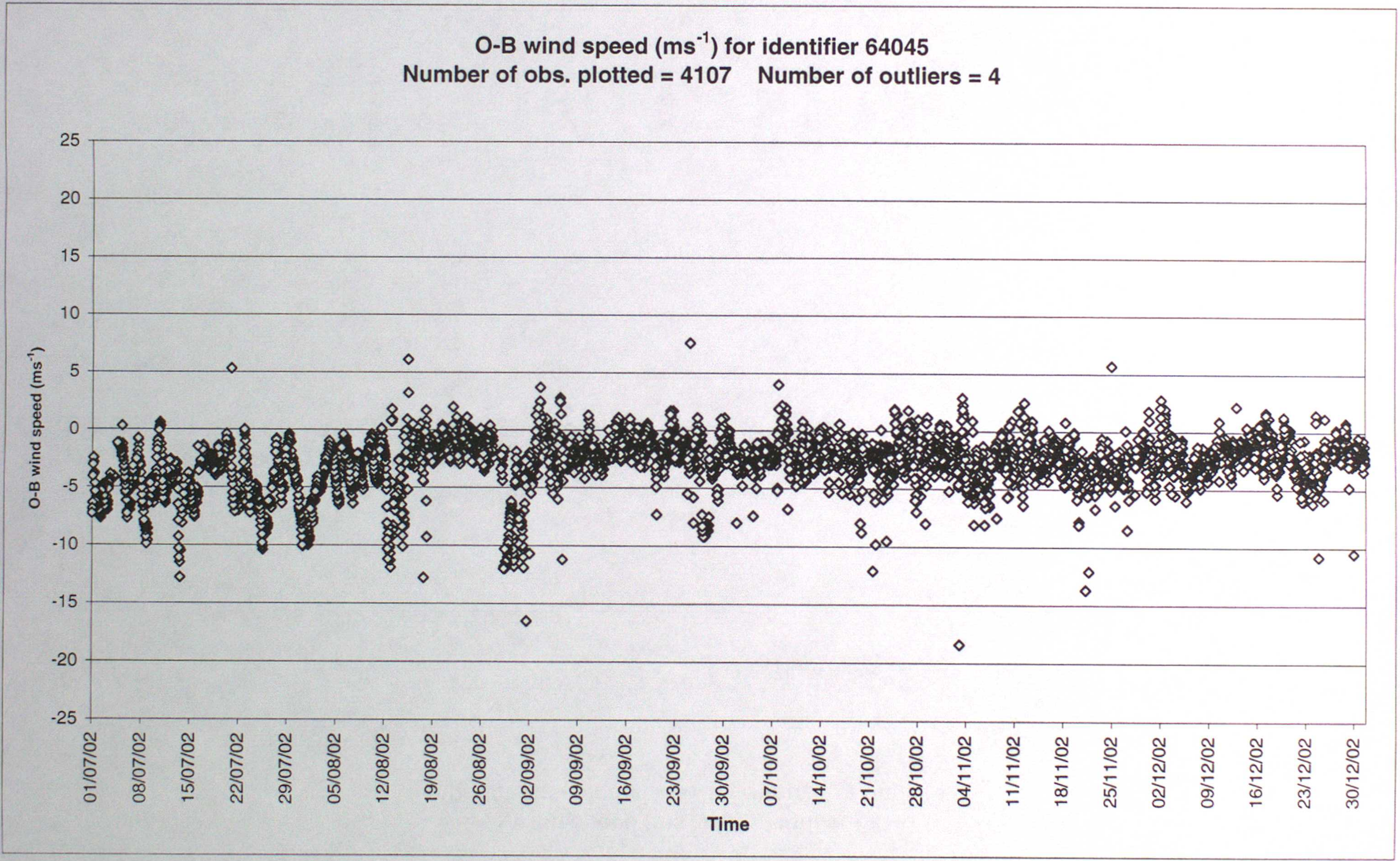


O-B wind speed (ms^{-1}) for identifier 52643

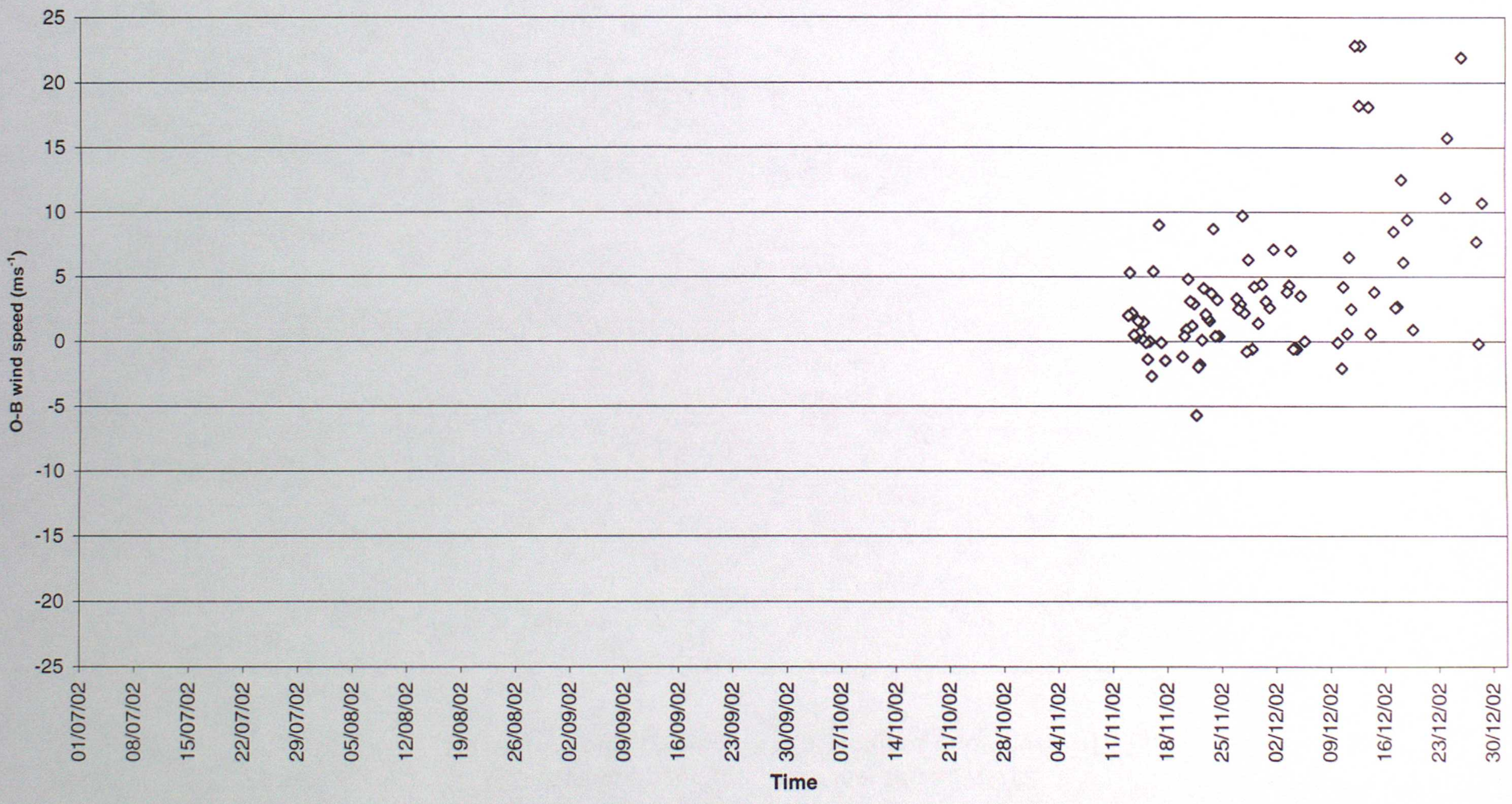
Number of obs. plotted = 2969   Number of outliers = 117

O-B wind speed (ms^{-1}) for identifier 62147
Number of obs. plotted = 577   Number of outliers = 0



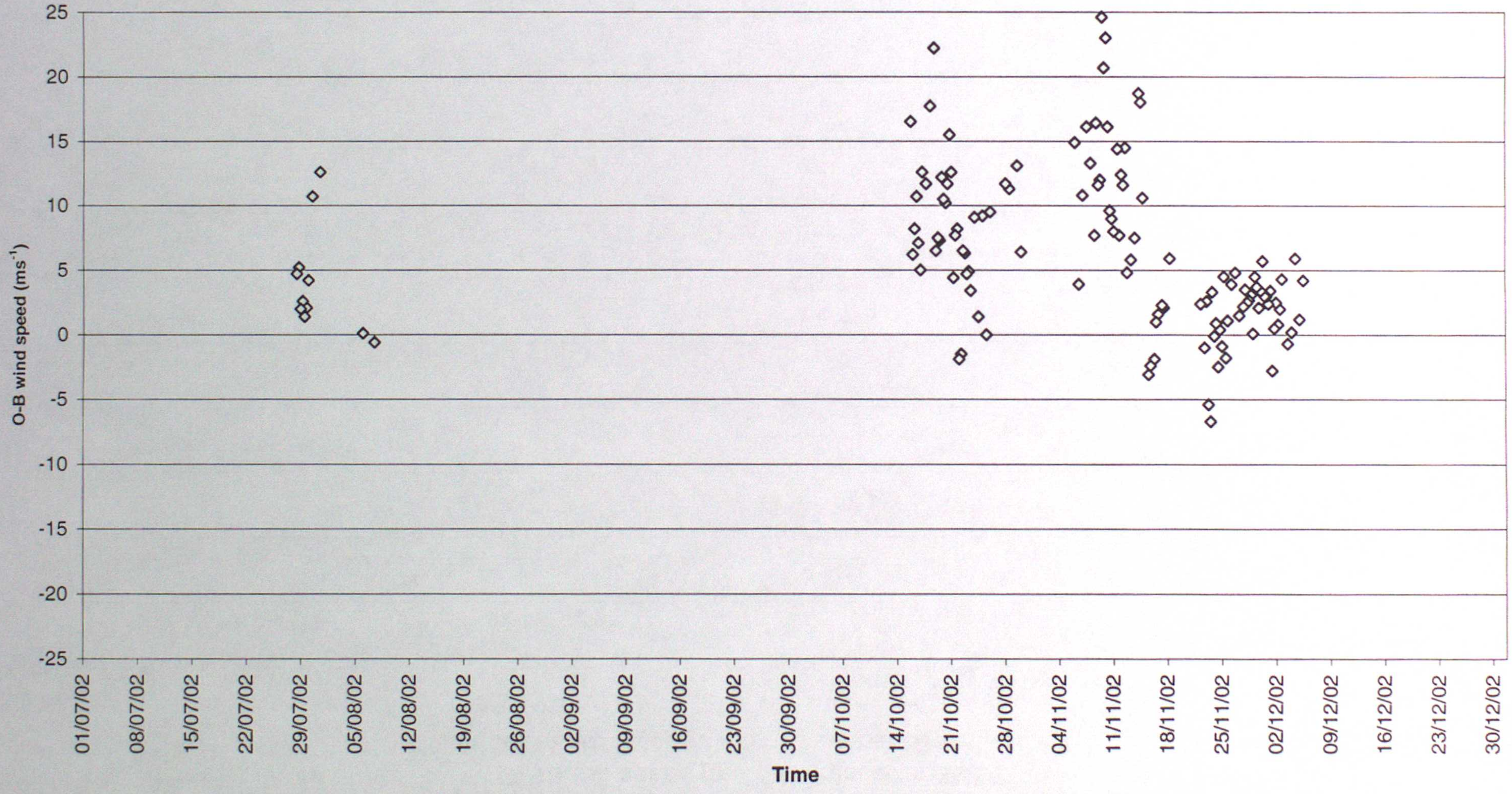


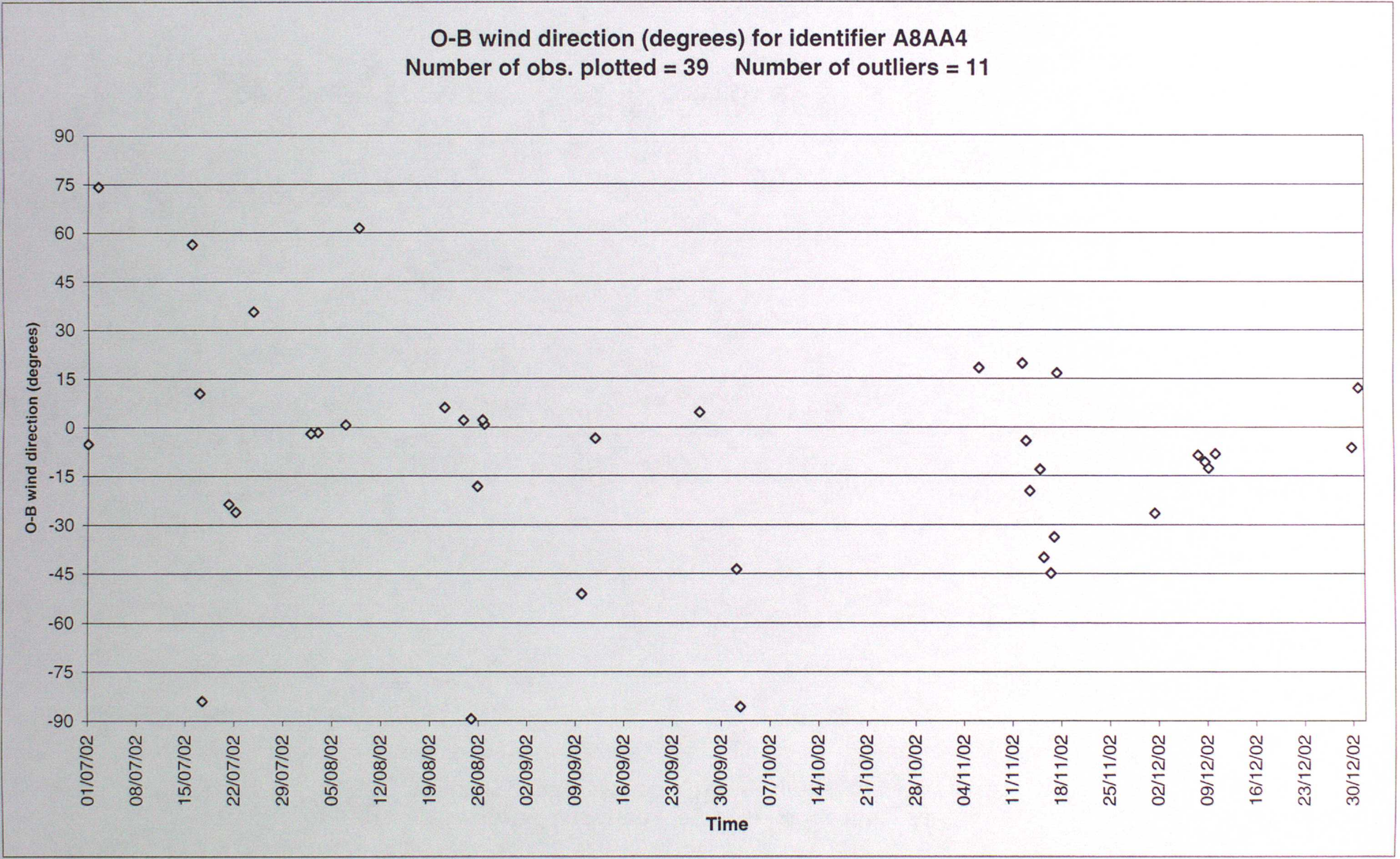
O-B wind speed (ms^{-1}) for identifier 64045
Number of obs. plotted = 4107   Number of outliers = 4

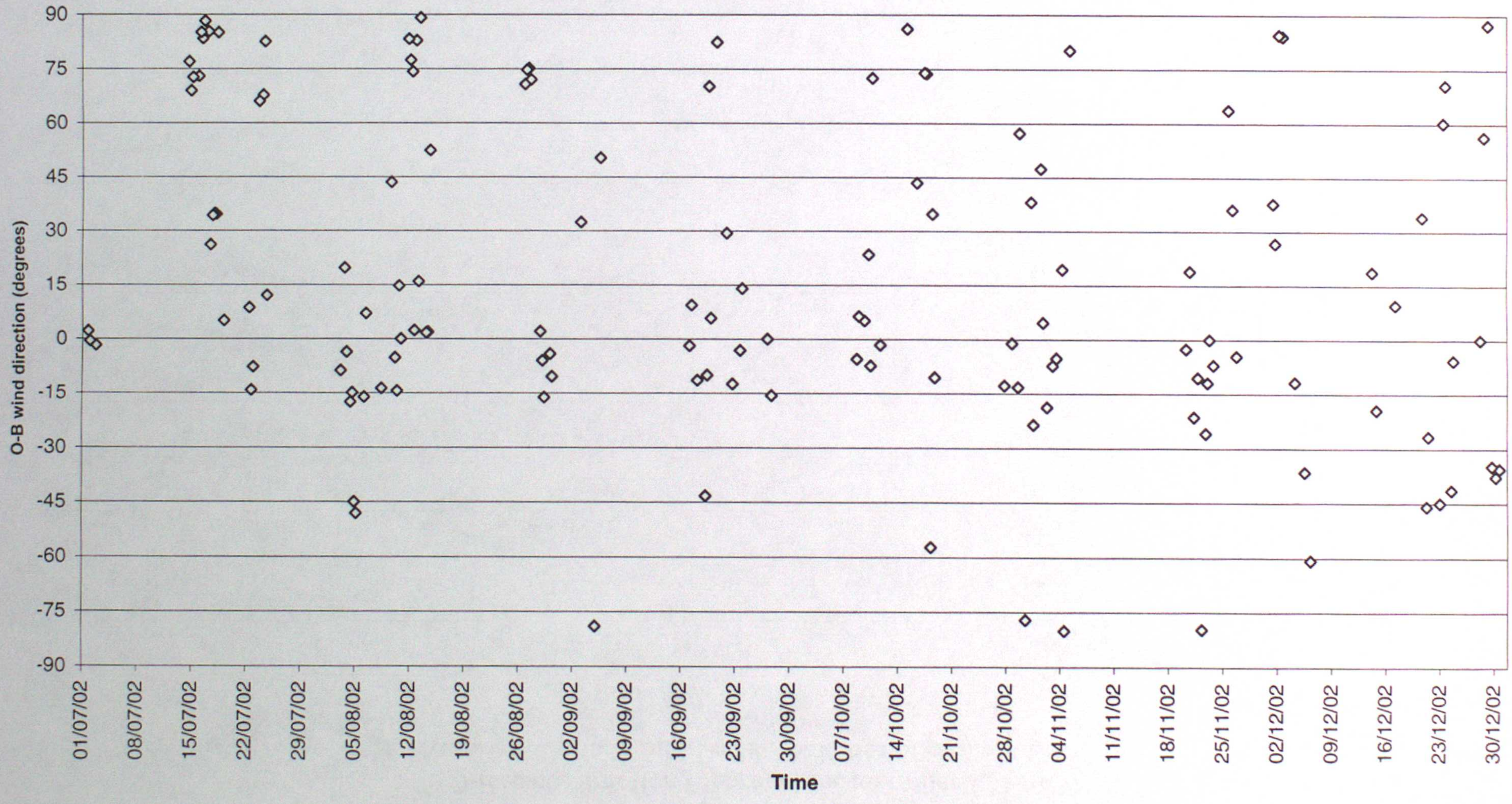


O-B wind speed (ms^{-1}) for identifier 9MET
Number of obs. plotted = 84   Number of outliers = 1

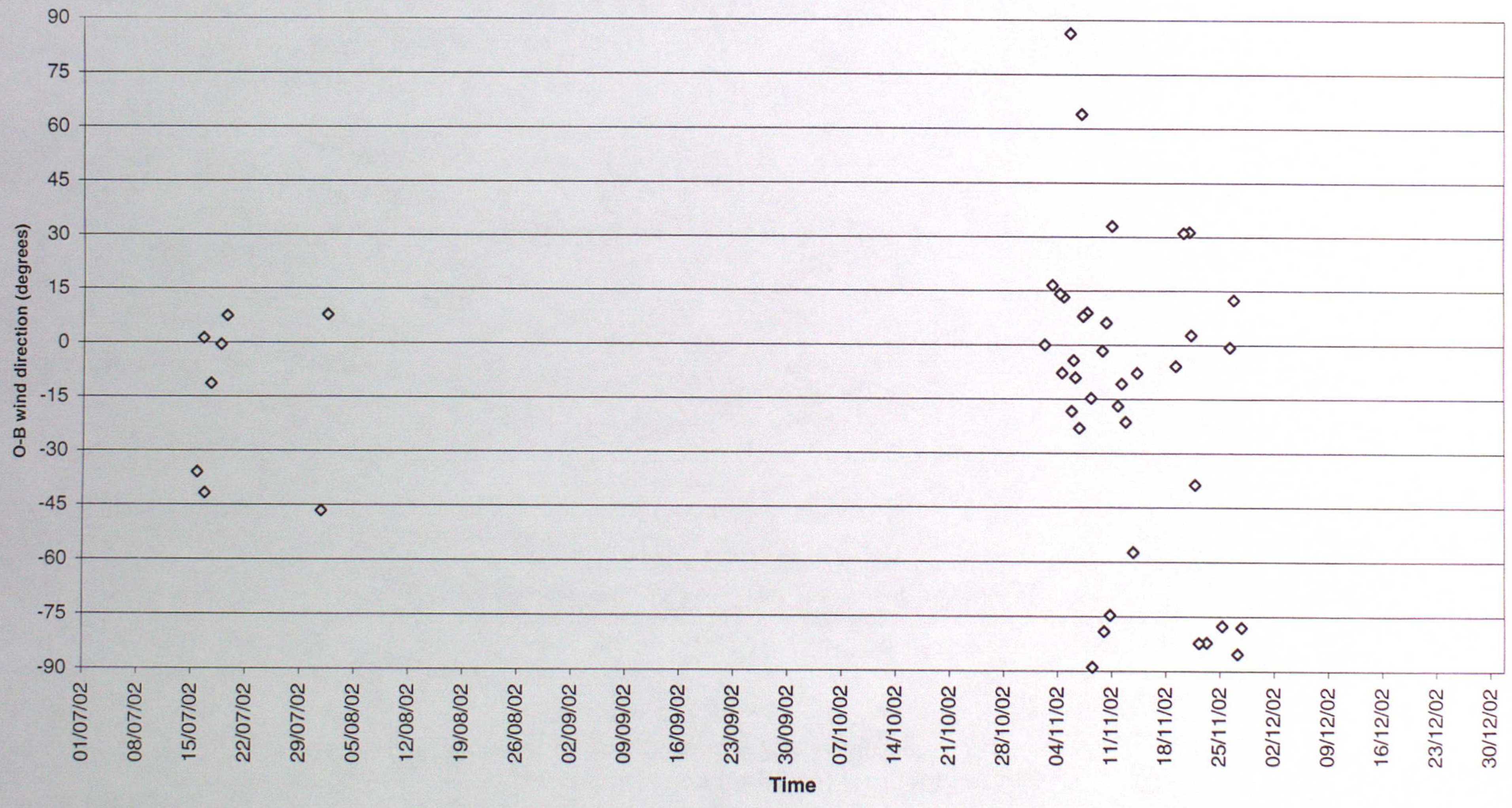
O-B wind speed (ms^{-1}) for identifier 9WCY2
Number of obs. plotted = 127   Number of outliers = 1

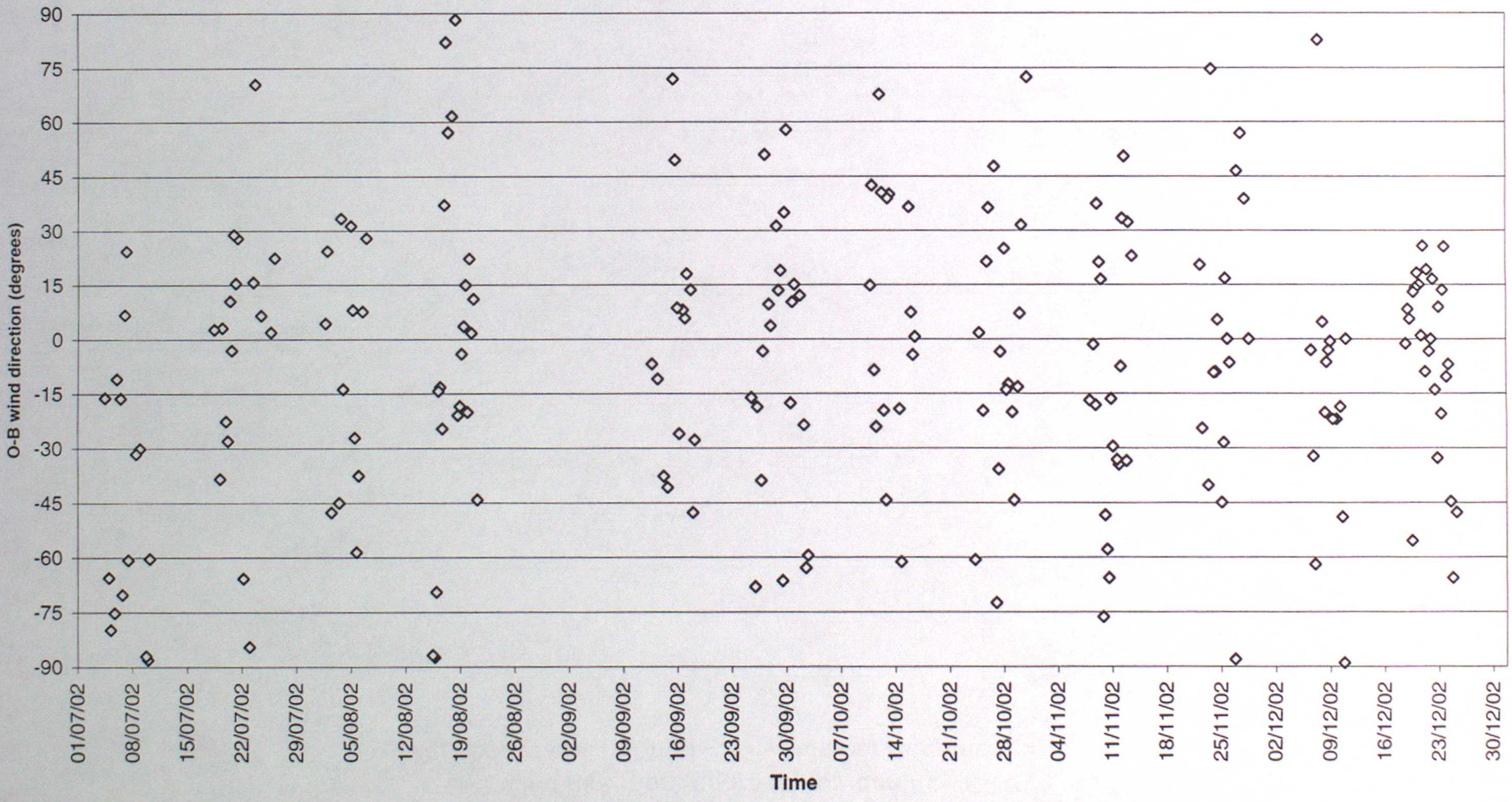



O-B wind direction (degrees) for identifier A8AA4
Number of obs. plotted = 39   Number of outliers = 11



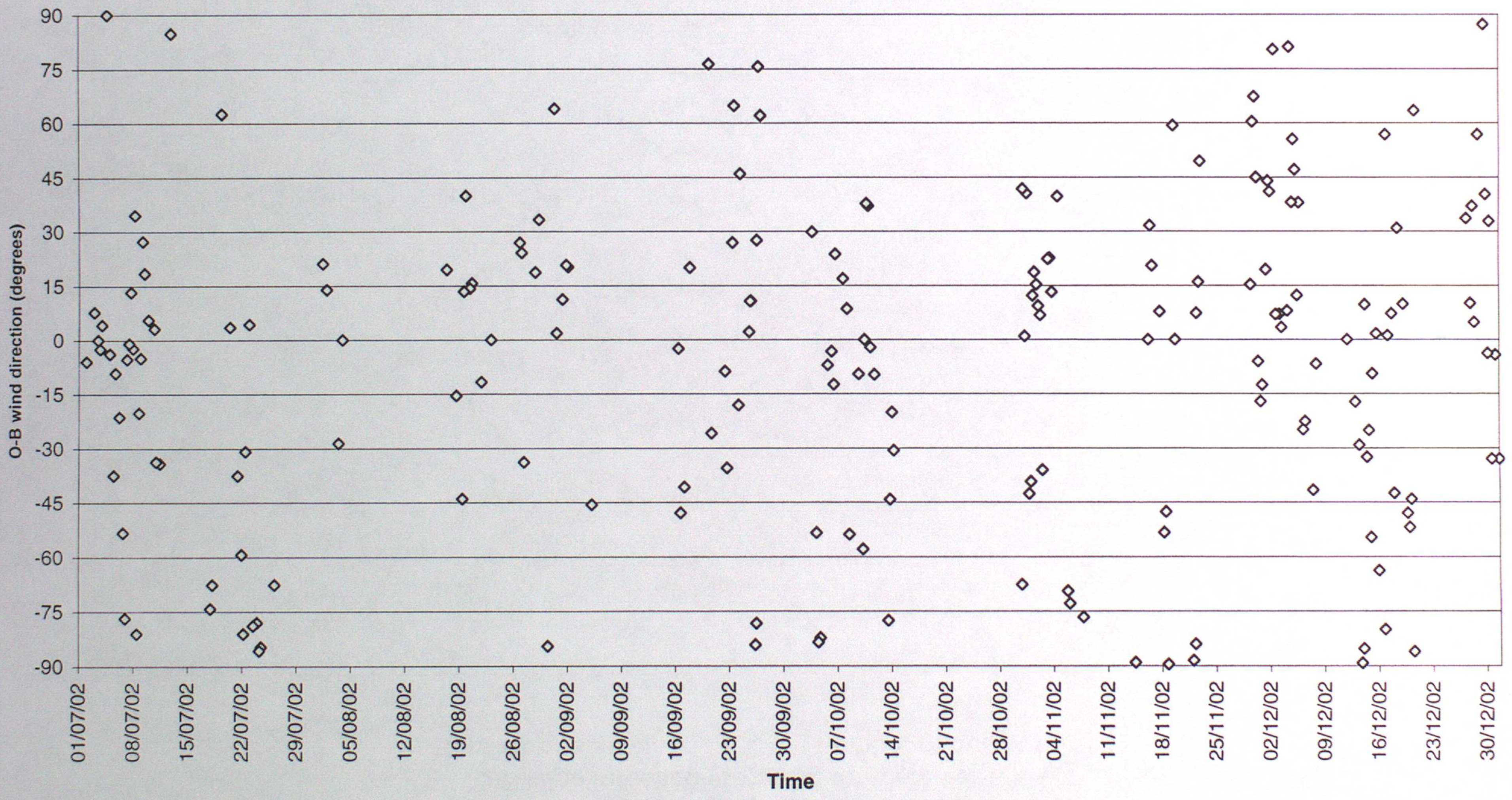
O-B wind direction (degrees) for identifier A8AF6
Number of obs. plotted = 140   Number of outliers = 31

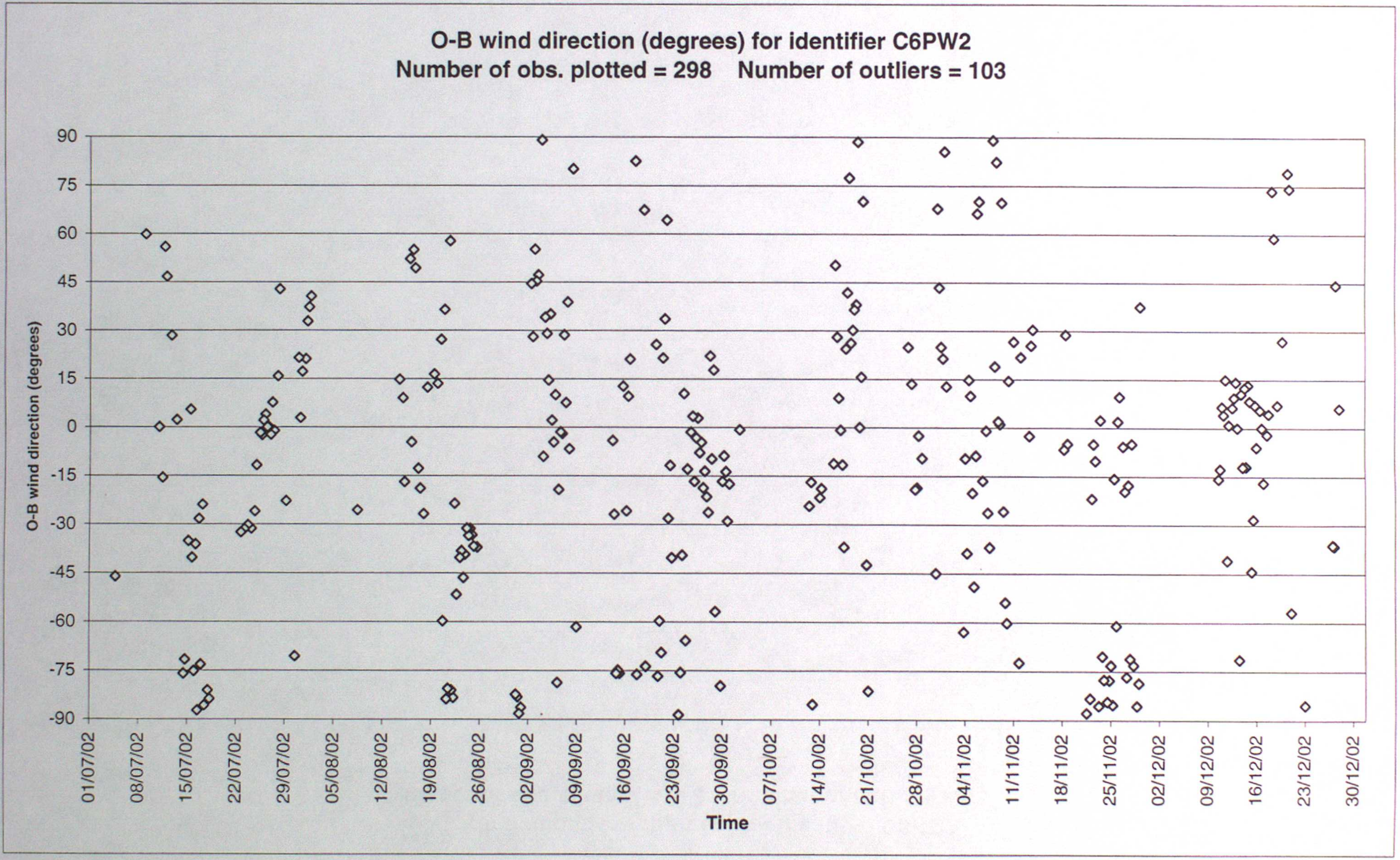

O-B wind direction (degrees) for identifier CGDV
Number of obs. plotted = 45   Number of outliers = 10



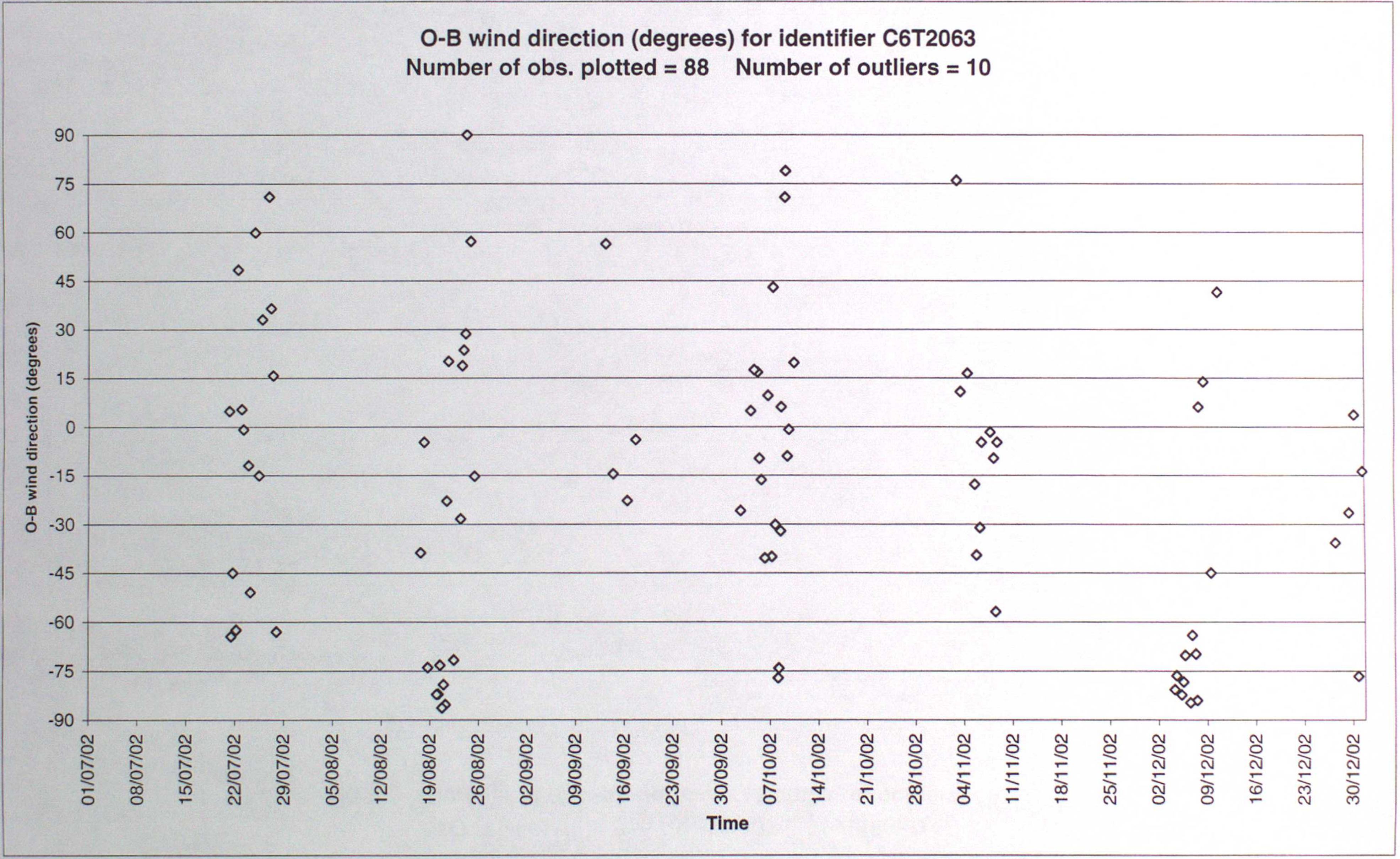
O-B wind direction (degrees) for identifier C6KD4
Number of obs. plotted = 213   Number of outliers = 59

O-B wind direction (degrees) for identifier C6KD7
Number of obs. plotted = 203   Number of outliers = 63

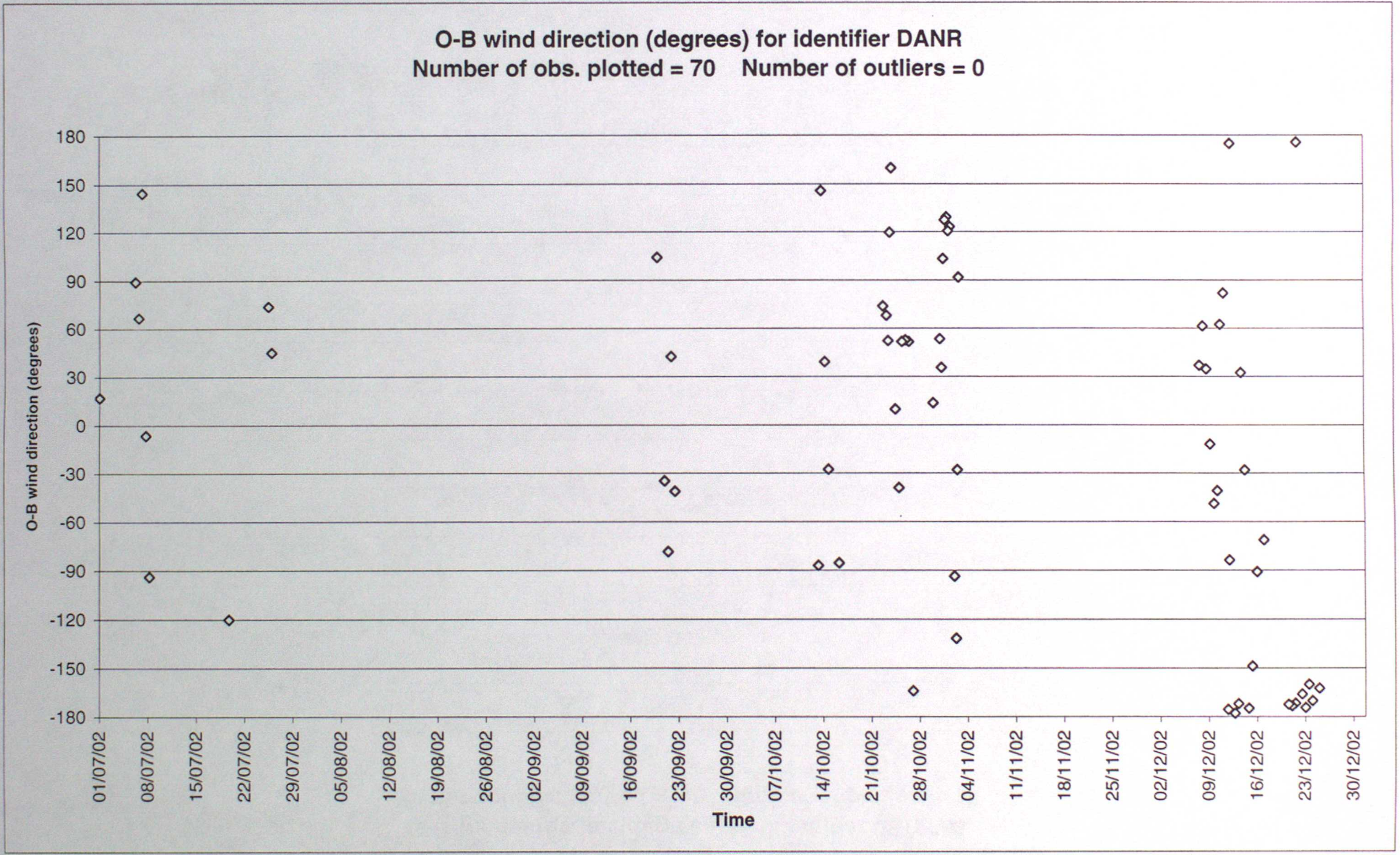




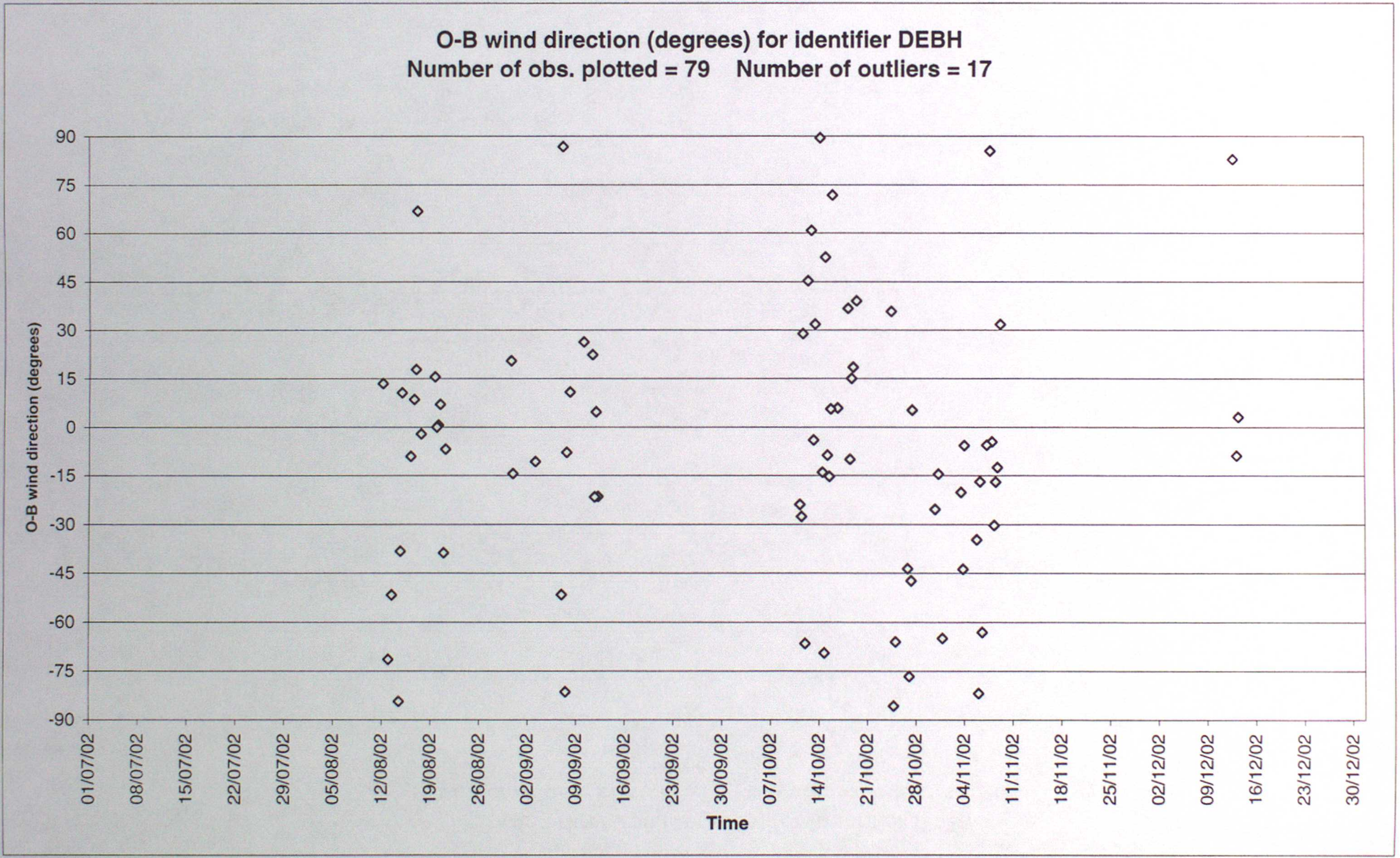
O-B wind direction (degrees) for identifier C6PW2
Number of obs. plotted = 298   Number of outliers = 103



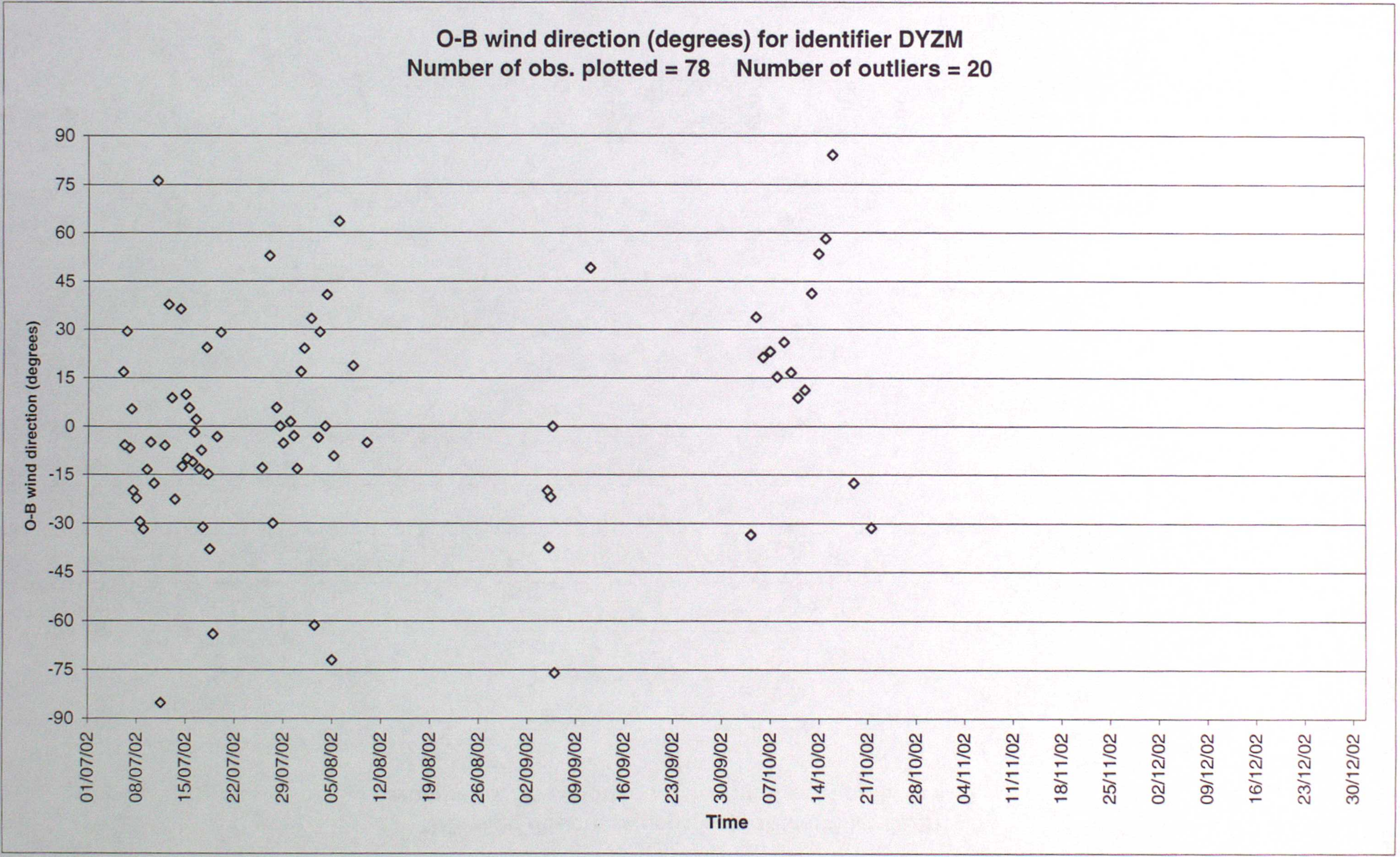
O-B wind direction (degrees) for identifier C6T2063
Number of obs. plotted = 88   Number of outliers = 10



O-B wind direction (degrees) for identifier DANR
Number of obs. plotted = 70 Number of outliers = 0

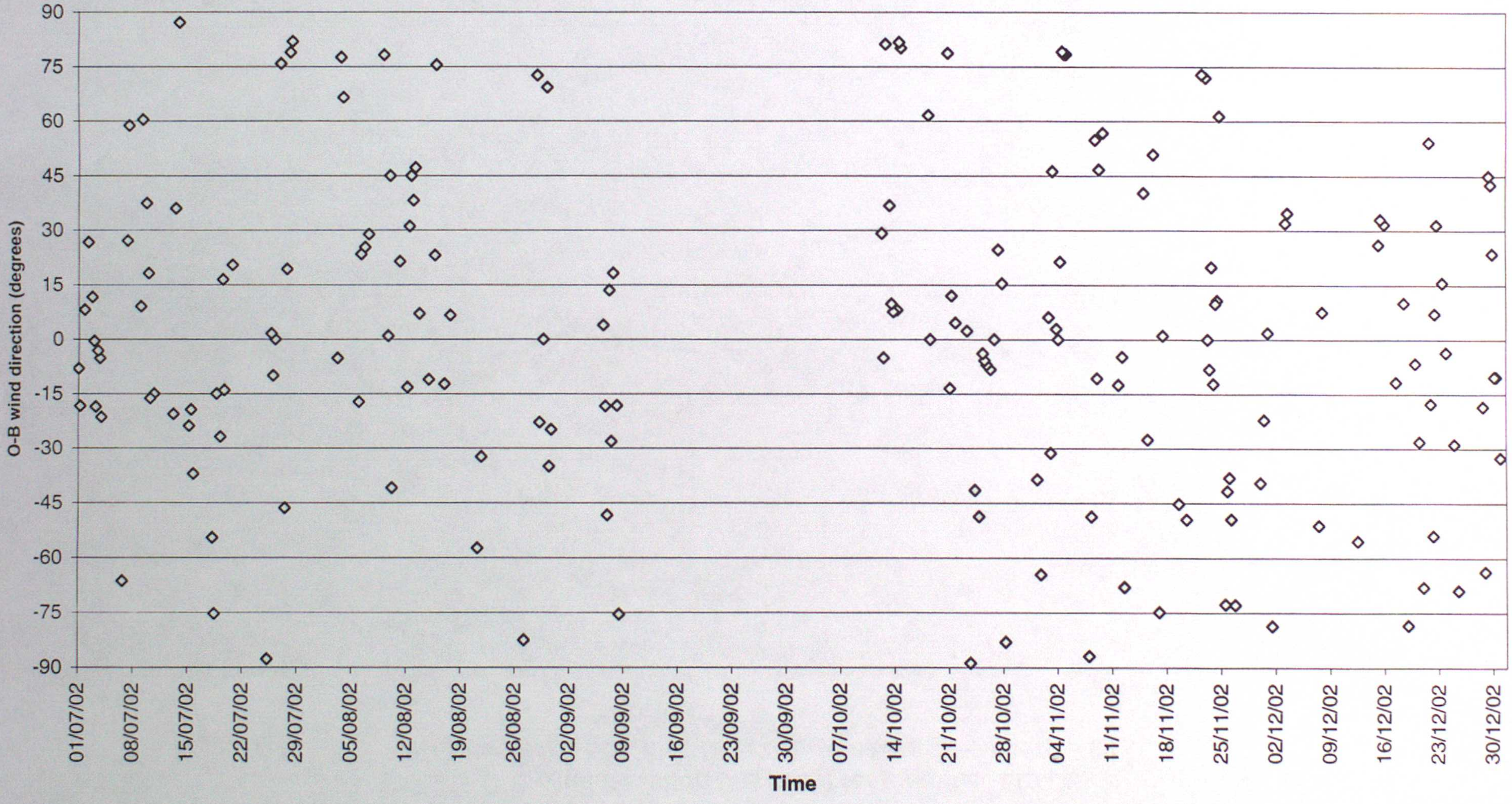


O-B wind direction (degrees) for identifier DEBH
Number of obs. plotted = 79   Number of outliers = 17

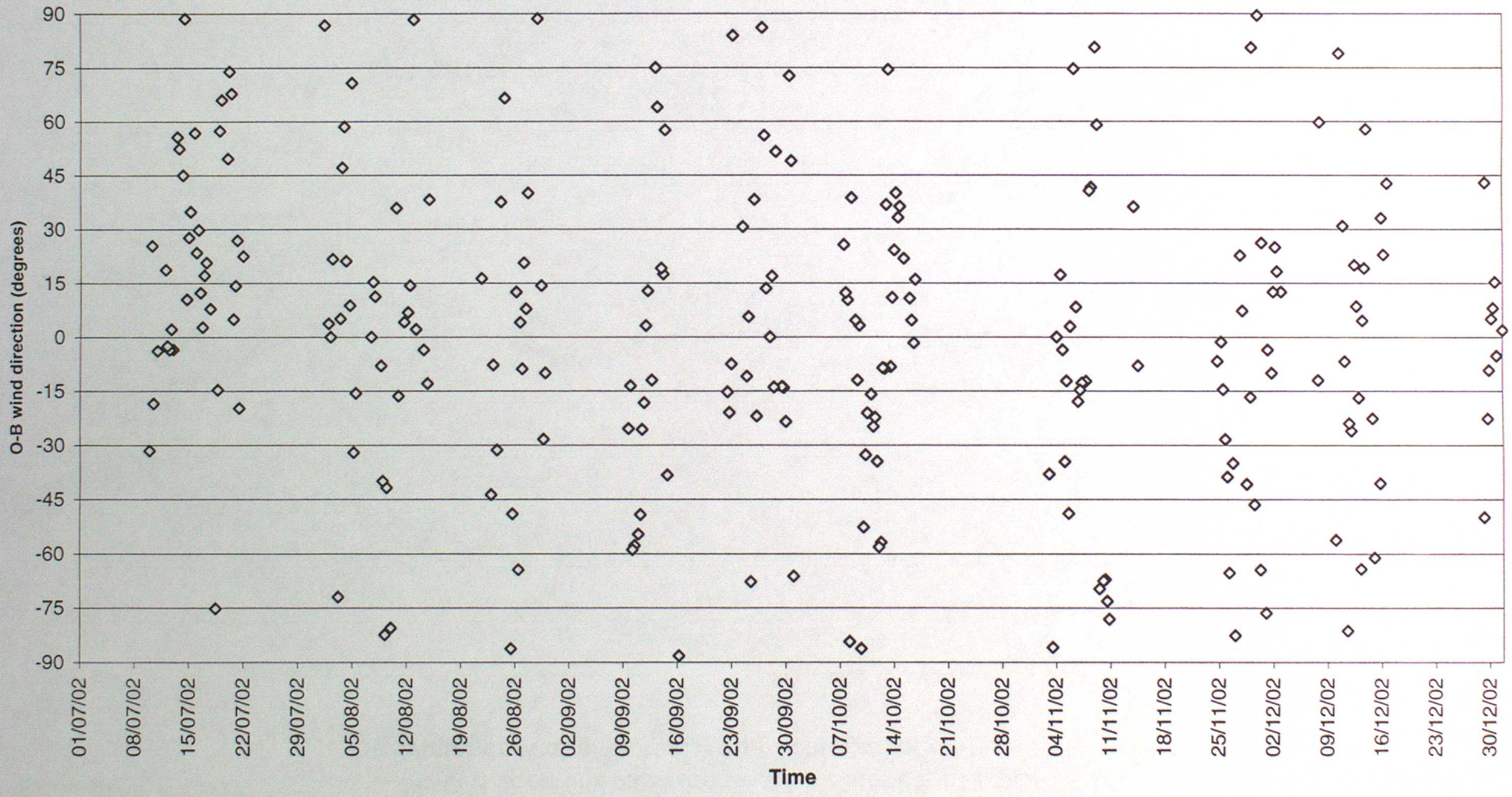


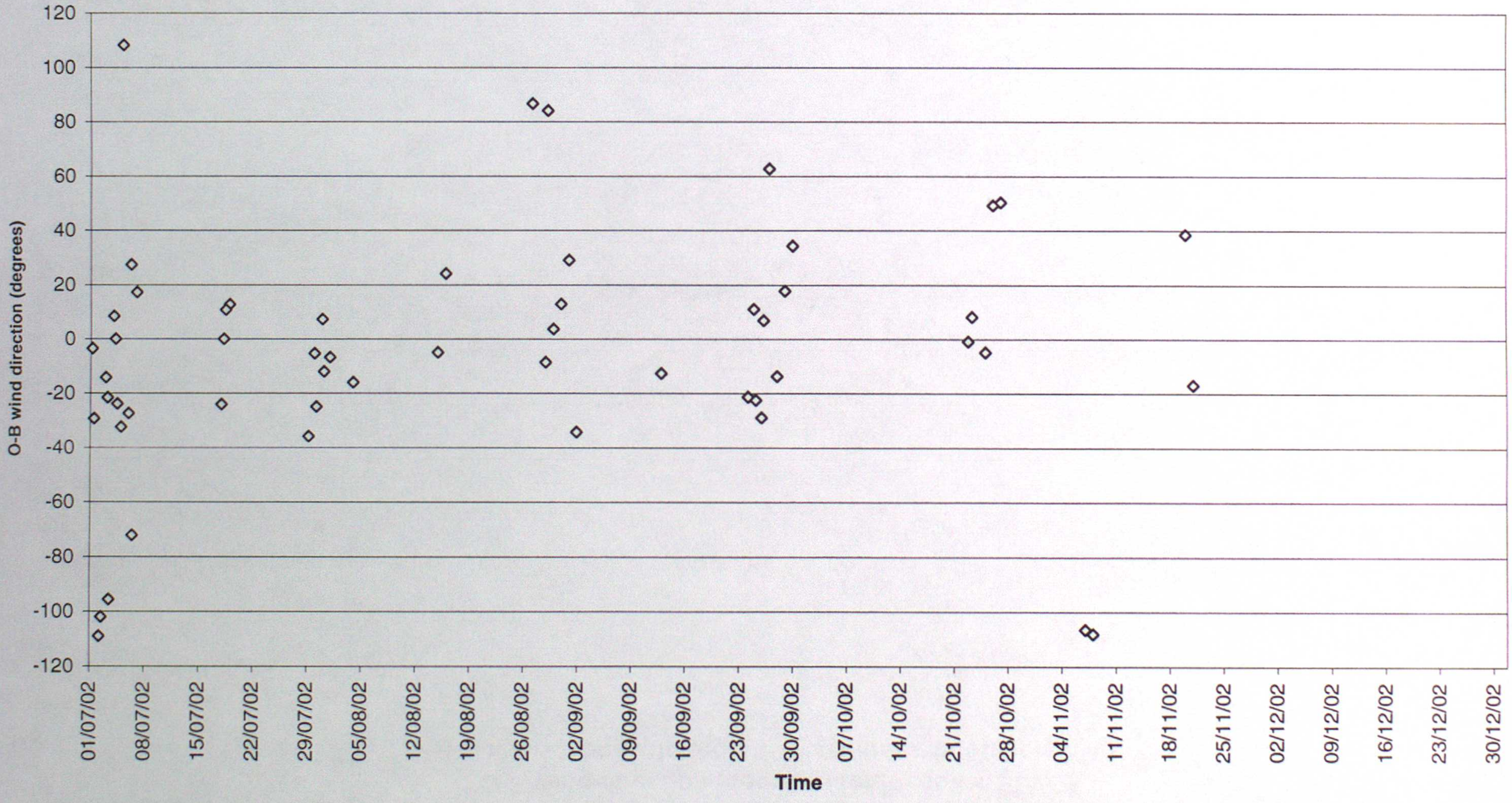
O-B wind direction (degrees) for identifier DYZM
Number of obs. plotted = 78   Number of outliers = 20

O-B wind direction (degrees) for identifier ELOG5
Number of obs. plotted = 184   Number of outliers = 48



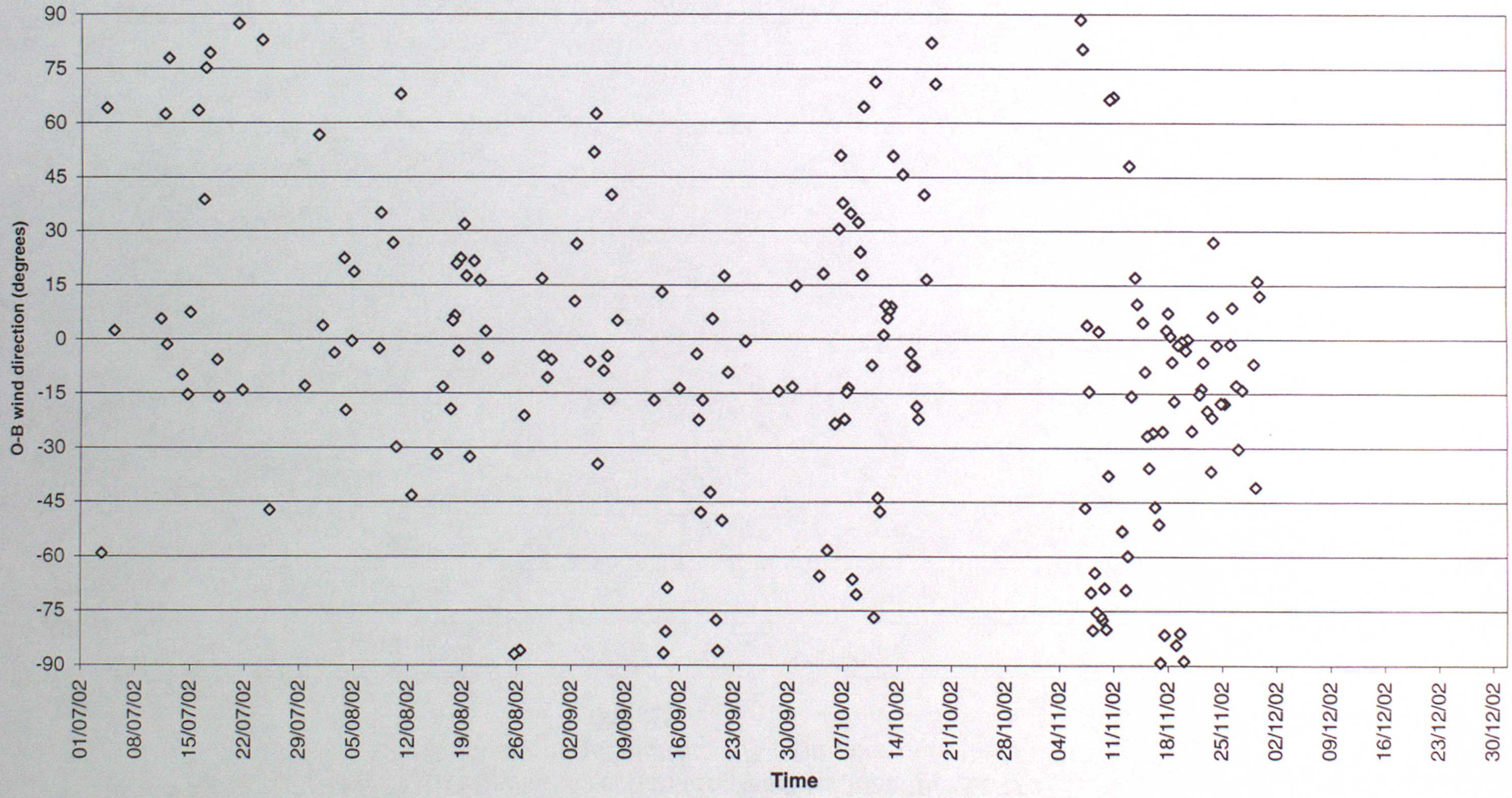
O-B wind direction (degrees) for identifier ELTQ6
Number of obs. plotted = 241   Number of outliers = 80



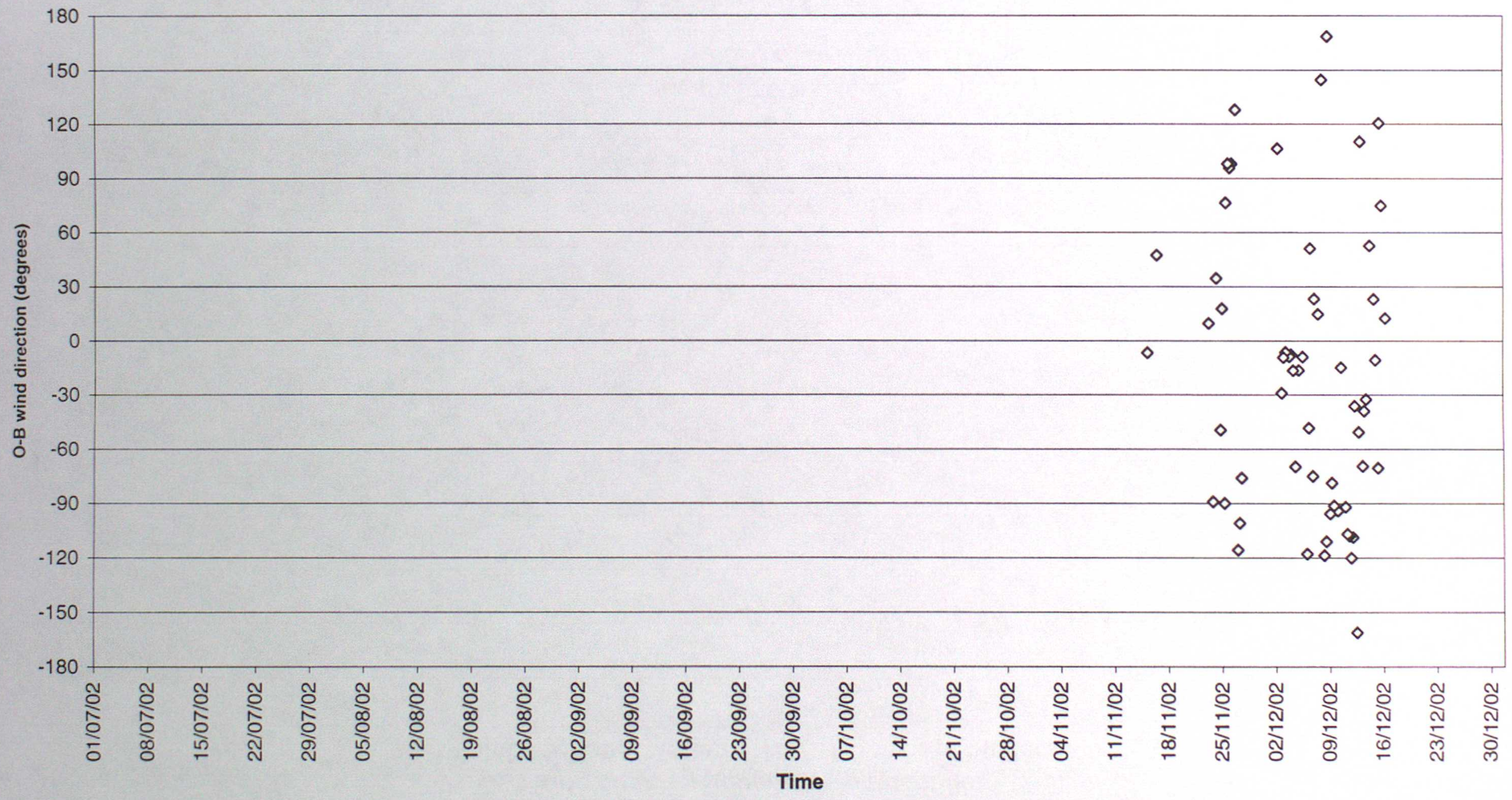


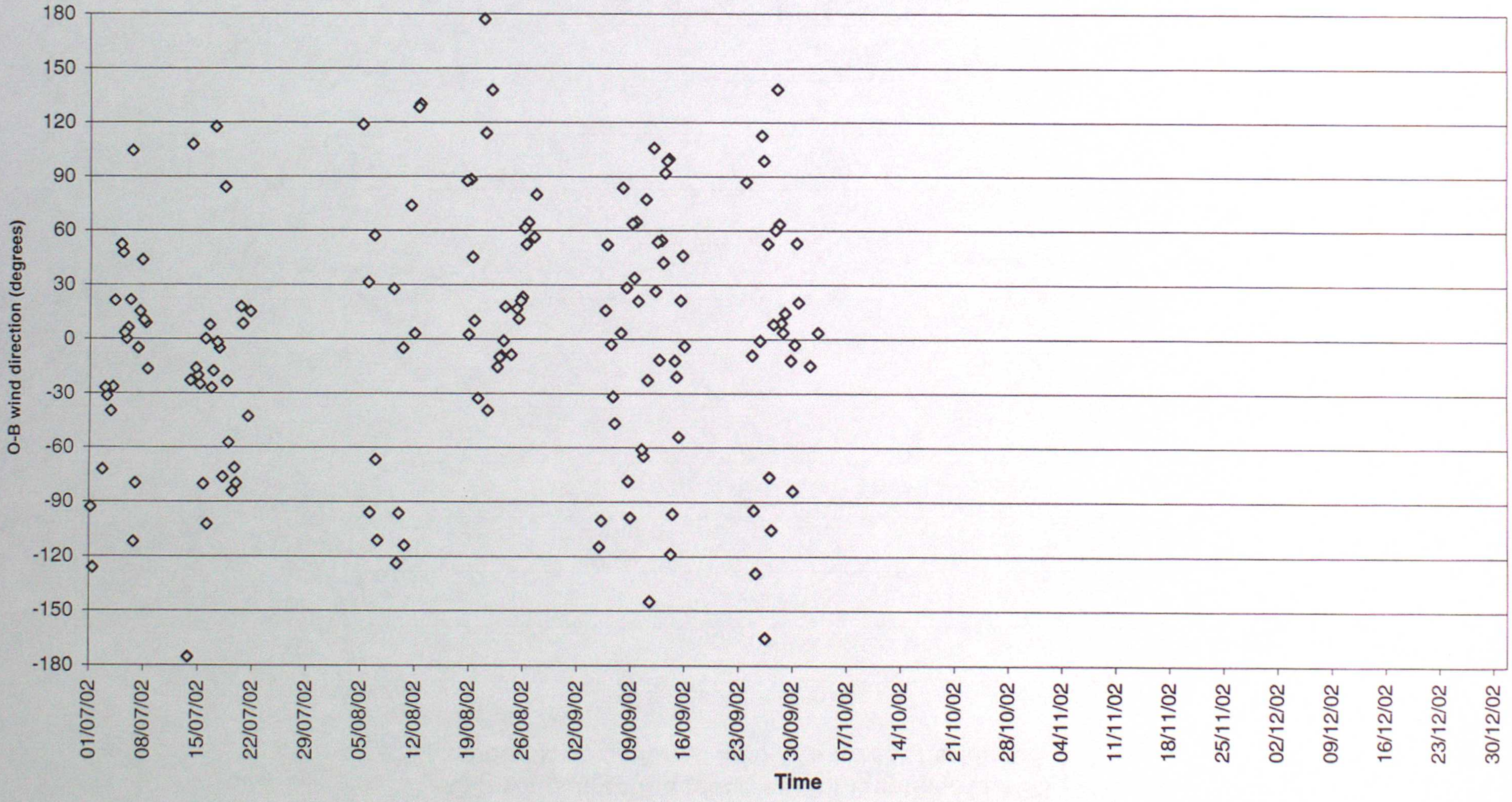
O-B wind direction (degrees) for identifier ELTT3
Number of obs. plotted = 55   Number of outliers = 8

O-B wind direction (degrees) for identifier ELVO5
Number of obs. plotted = 193   Number of outliers = 49



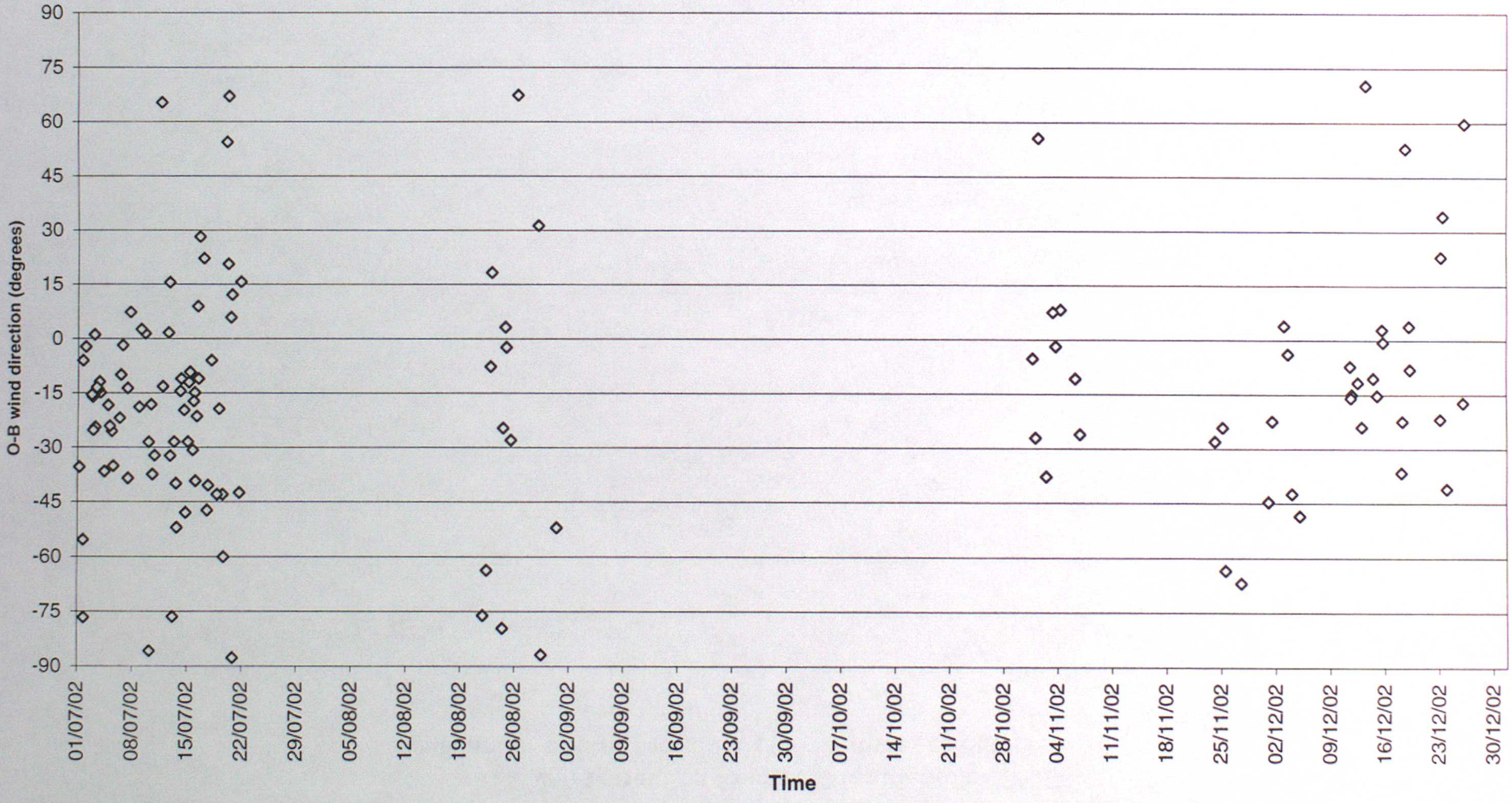
O-B wind direction (degrees) for identifier ELXO3
Number of obs. plotted = 60   Number of outliers = 0



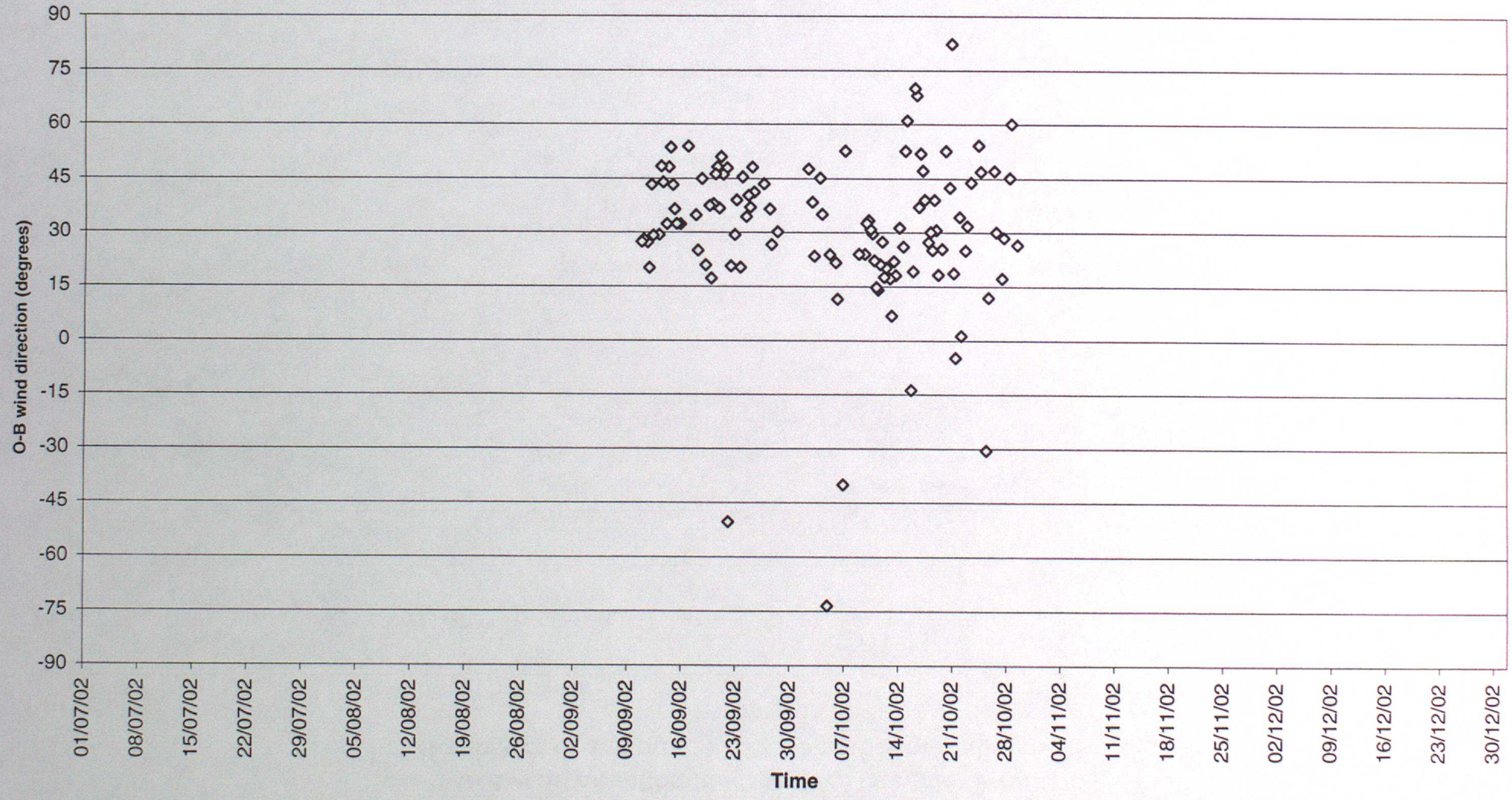


O-B wind direction (degrees) for identifier ELZE2
Number of obs. plotted = 152   Number of outliers = 0

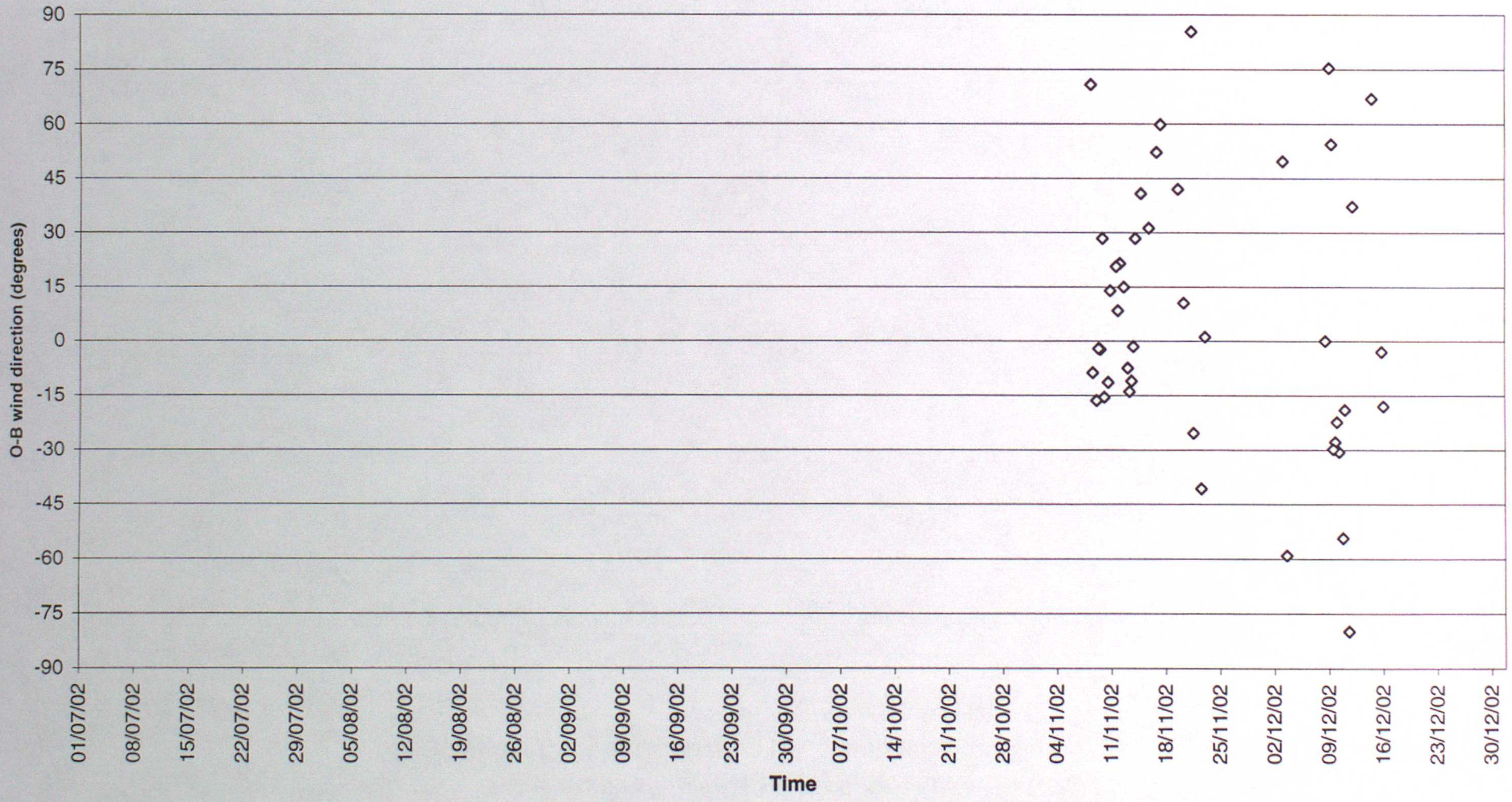
O-B wind direction (degrees) for identifier FNWX
Number of obs. plotted = 127   Number of outliers = 25



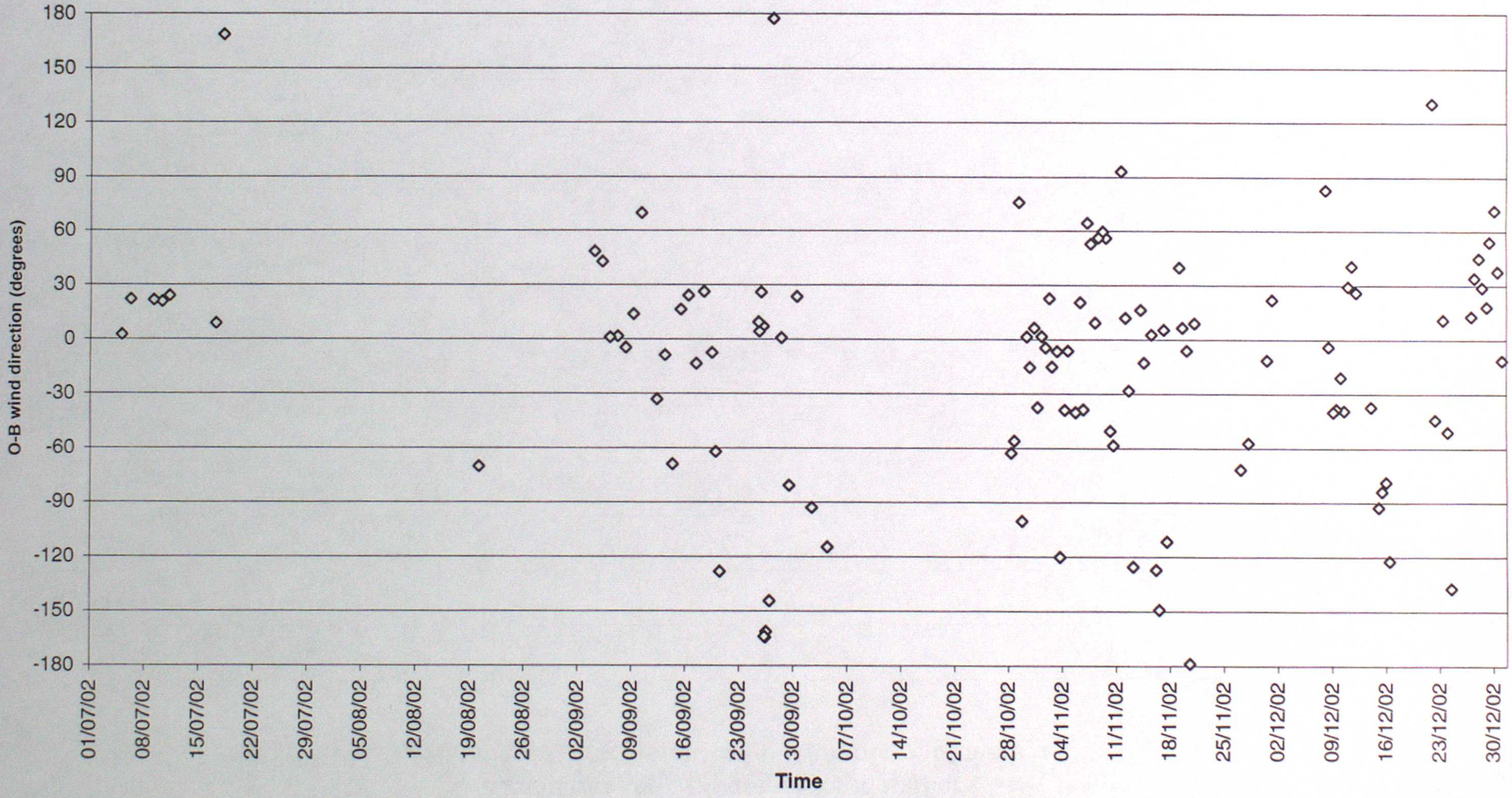
O-B wind direction (degrees) for identifier GHKF
Number of obs. plotted = 113   Number of outliers = 16

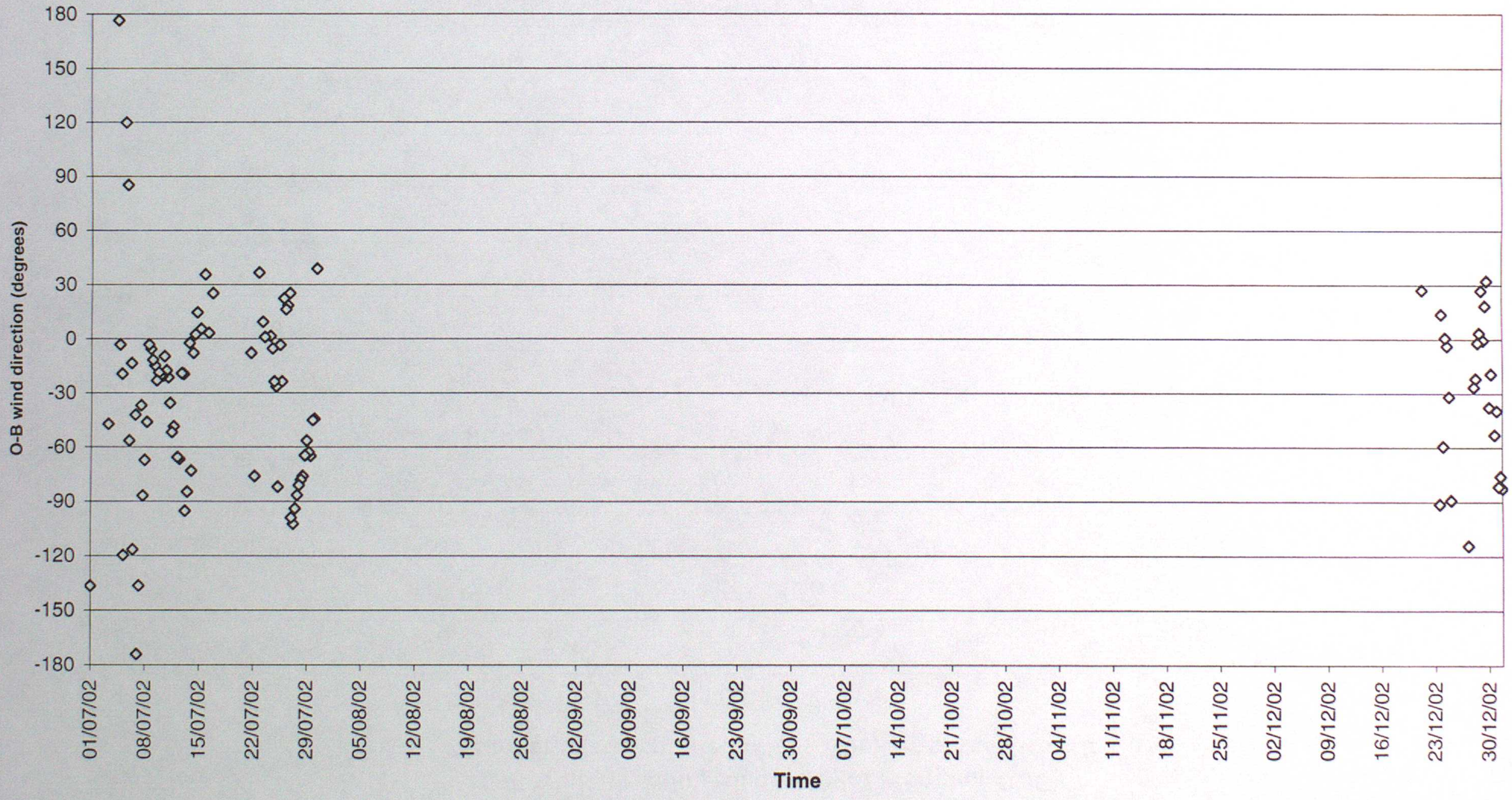


O-B wind direction (degrees) for identifier KCBH
Number of obs. plotted = 44   Number of outliers = 8



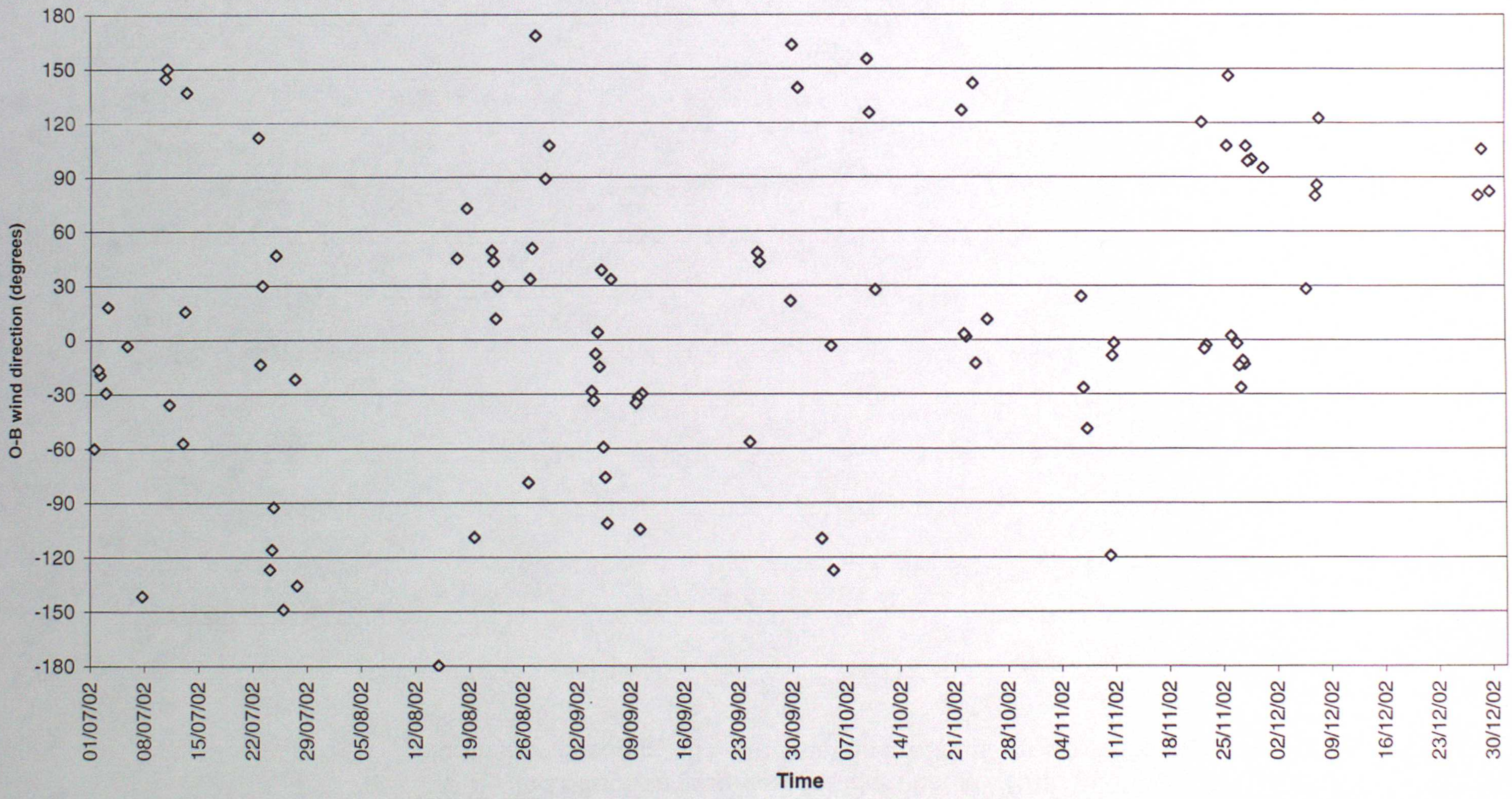
O-B wind direction (degrees) for identifier LANR5
Number of obs. plotted = 114   Number of outliers = 0

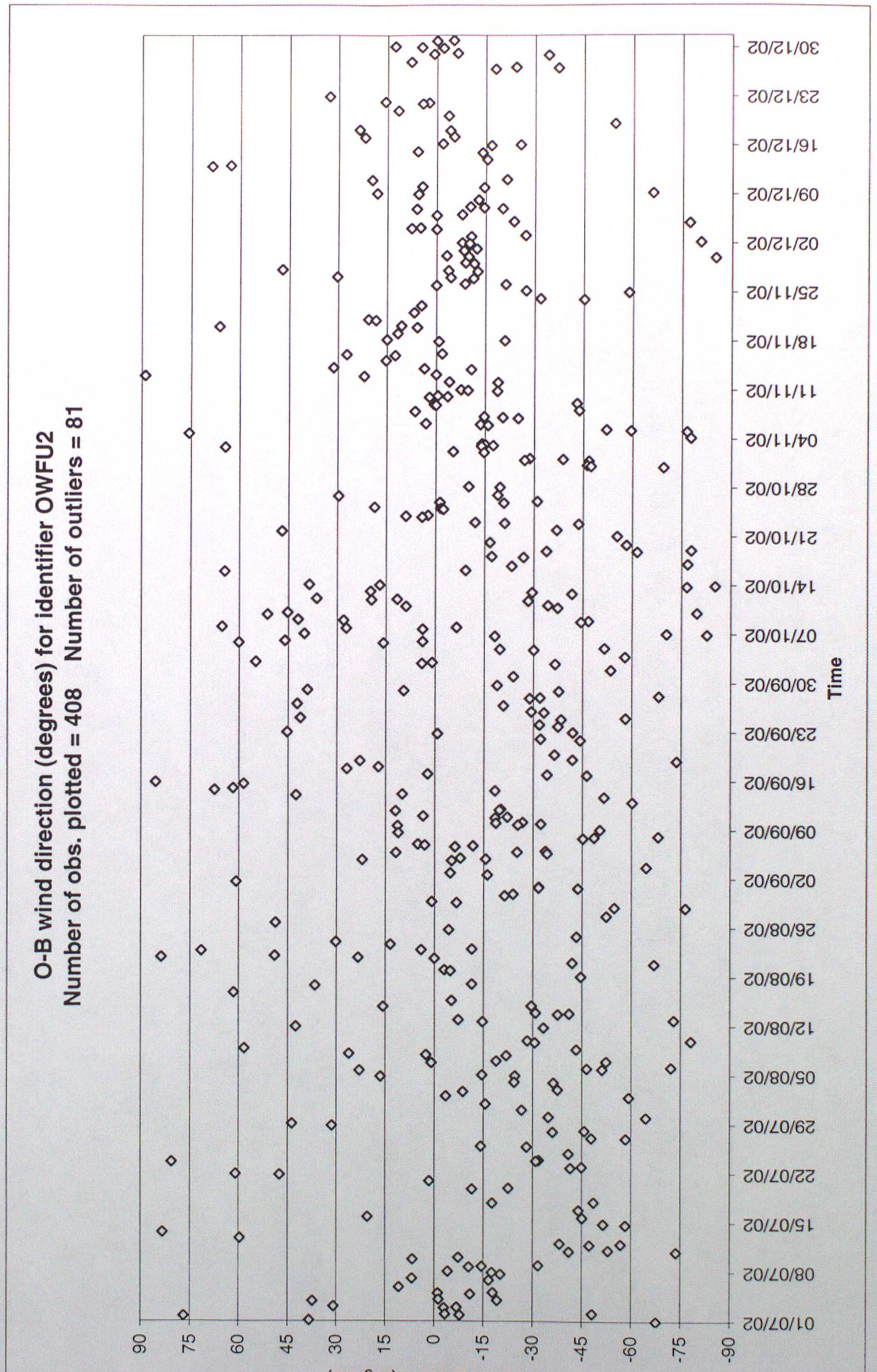




O-B wind direction (degrees) for identifier MWRA9
Number of obs. plotted = 101   Number of outliers = 0

O-B wind direction (degrees) for identifier OUGY
Number of obs. plotted = 97   Number of outliers = 0

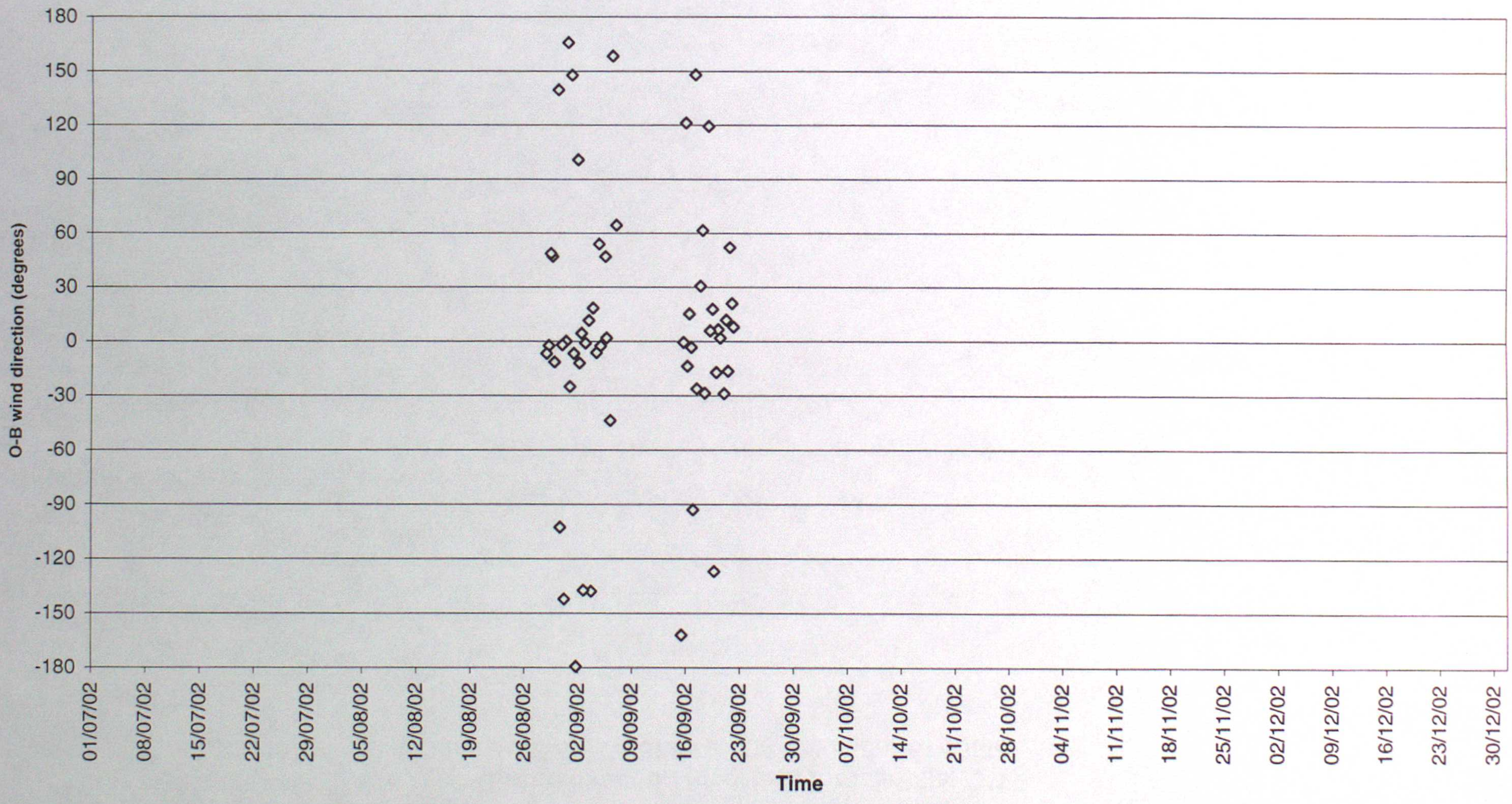


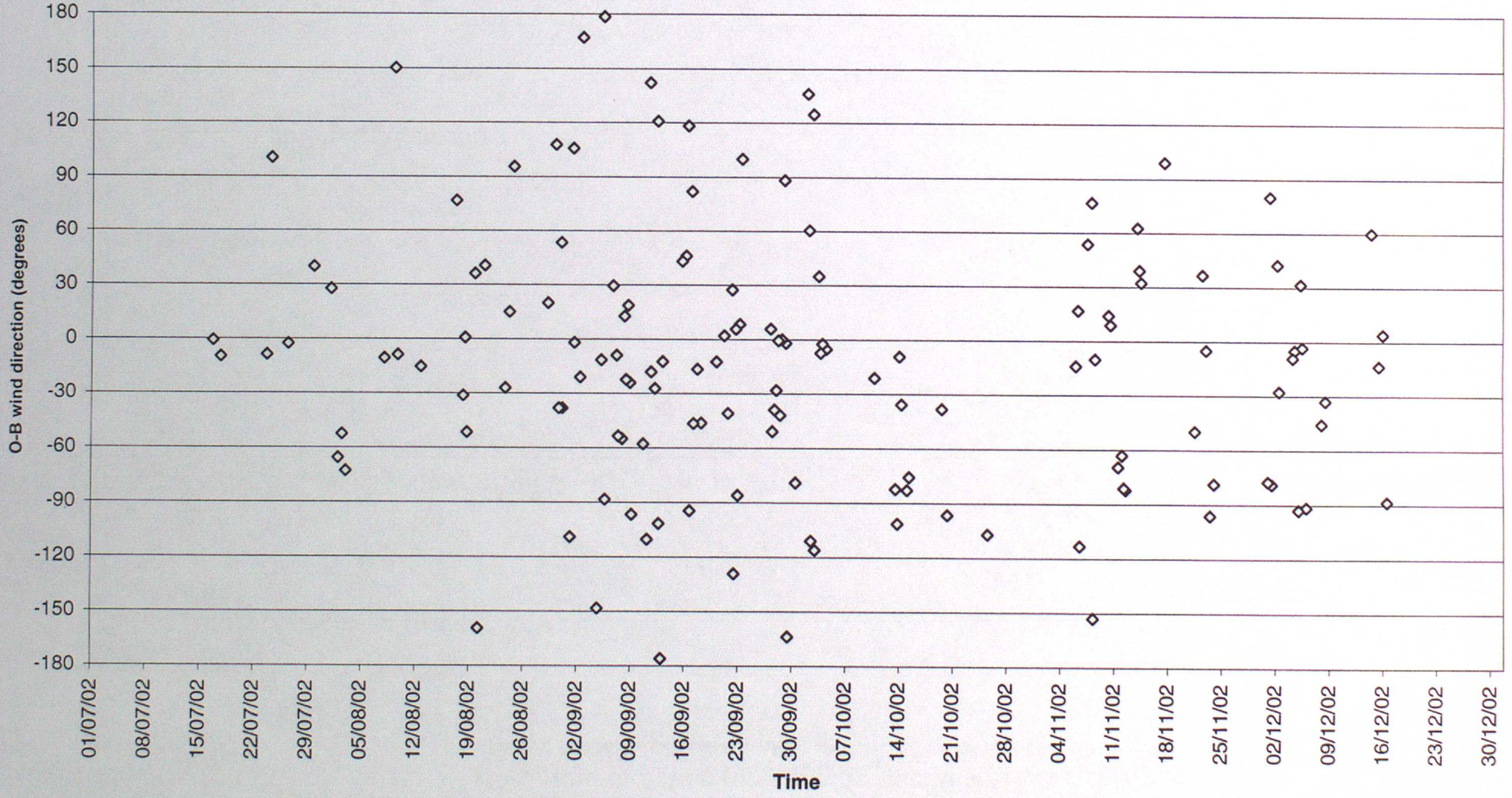


O-B wind direction (degrees) for identifier OWFU2

Number of obs. plotted = 408   Number of outliers = 81

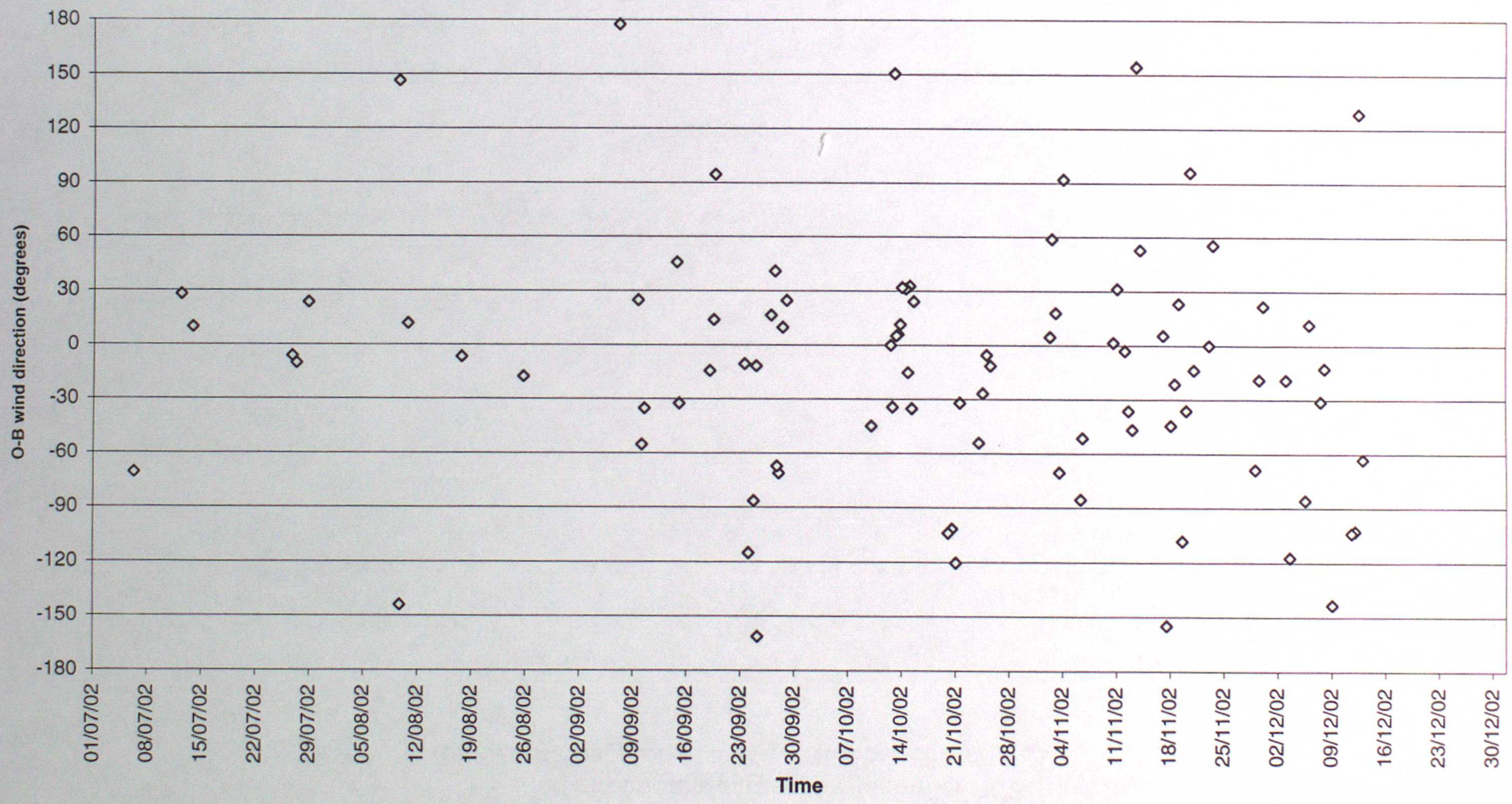
O-B wind direction (degrees) for identifier OZSK2
Number of obs. plotted = 56   Number of outliers = 0



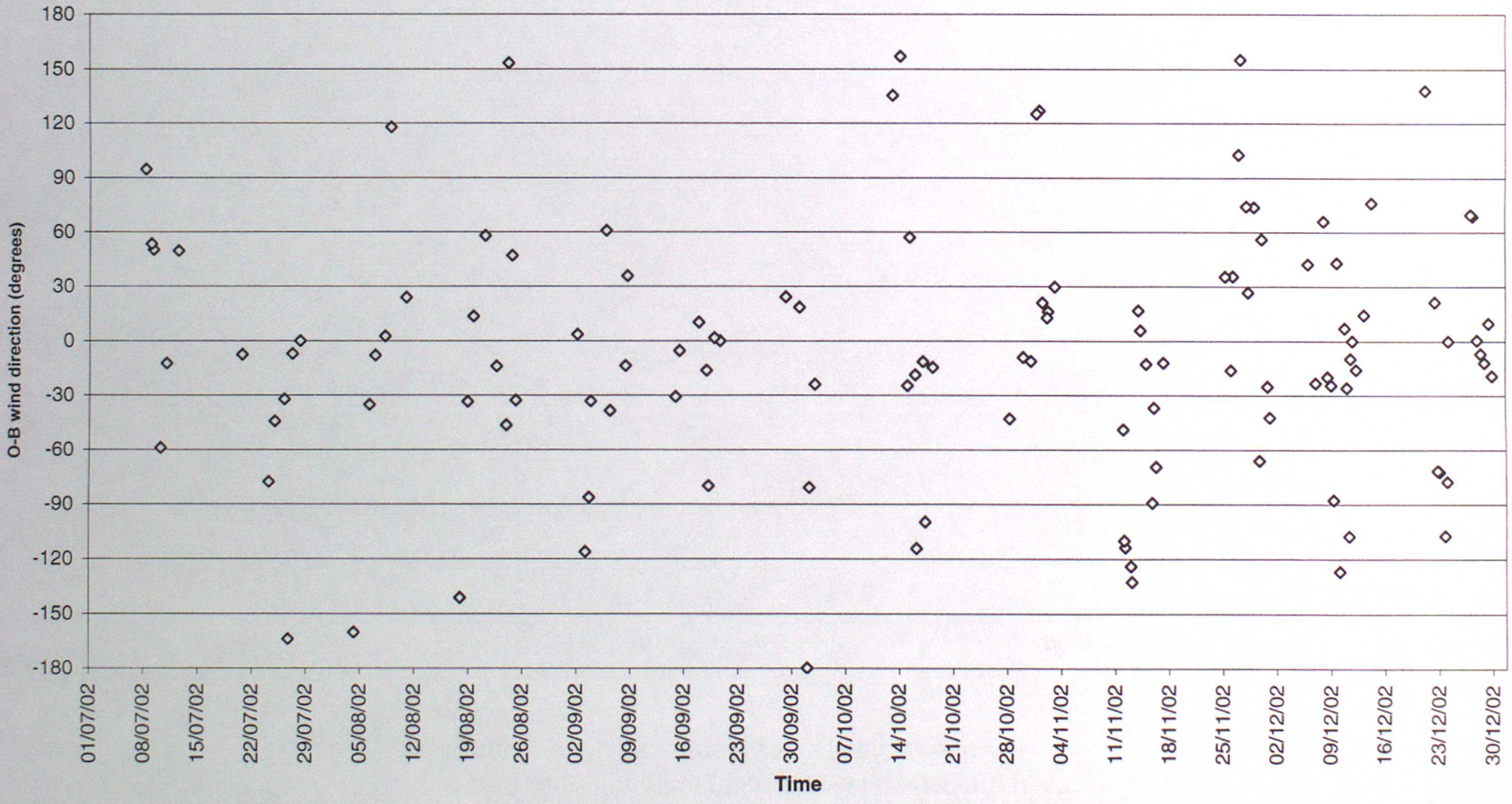


O-B wind direction (degrees) for identifier PCBU
Number of obs. plotted = 142   Number of outliers = 0

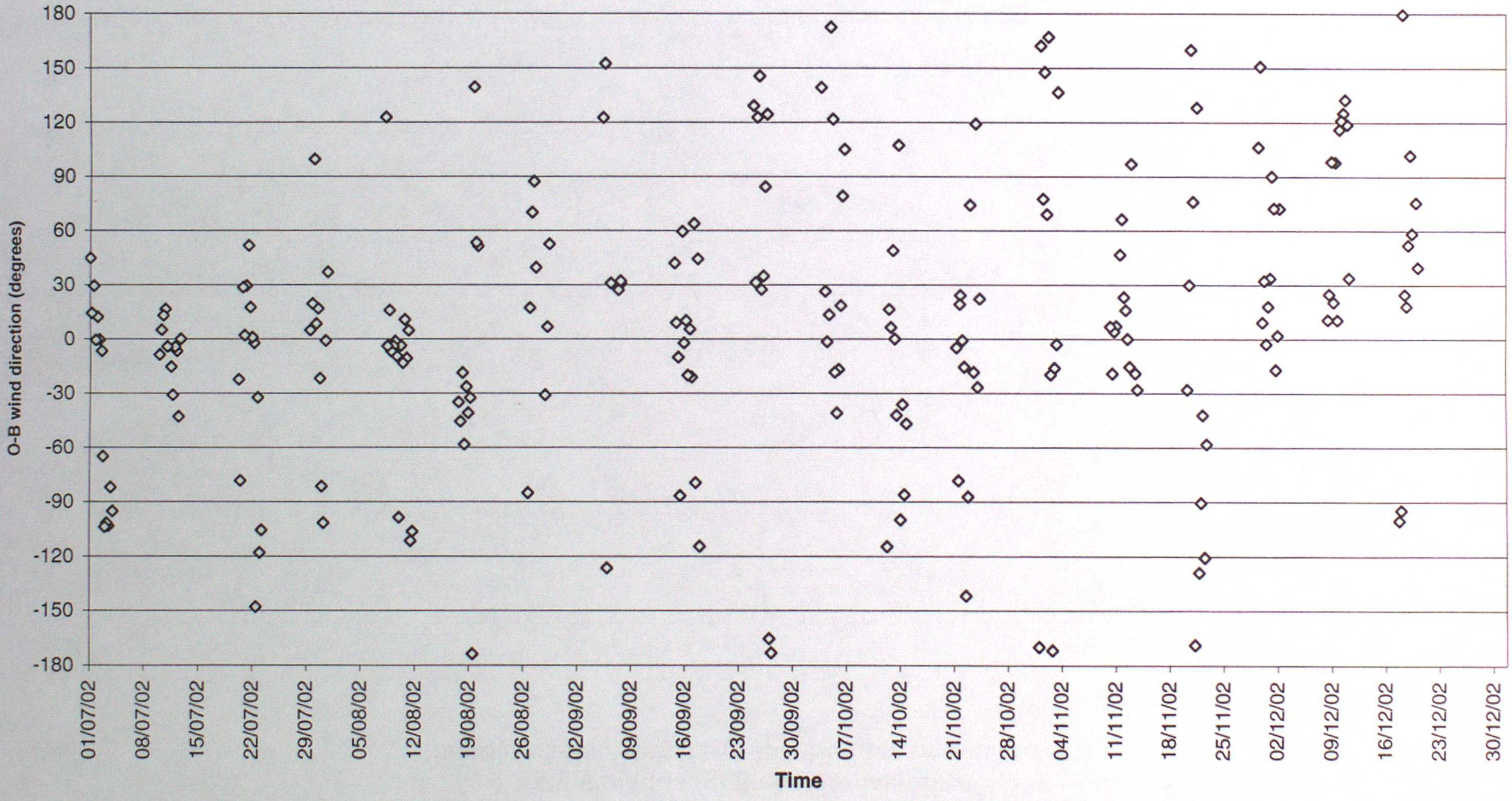
O-B wind direction (degrees) for identifier PFAI
Number of obs. plotted = 91   Number of outliers = 0

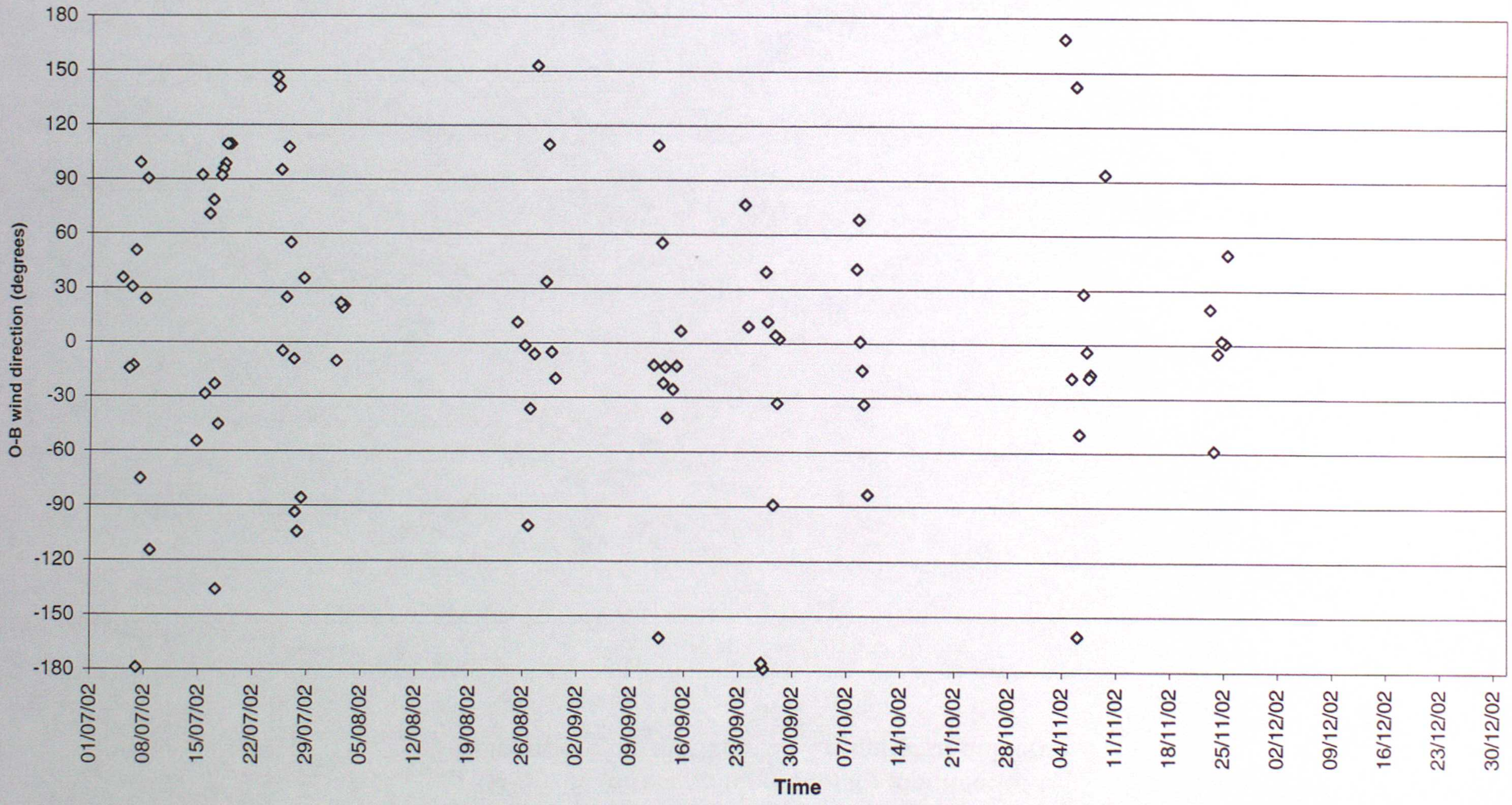


O-B wind direction (degrees) for identifier PJRH
Number of obs. plotted = 120   Number of outliers = 0



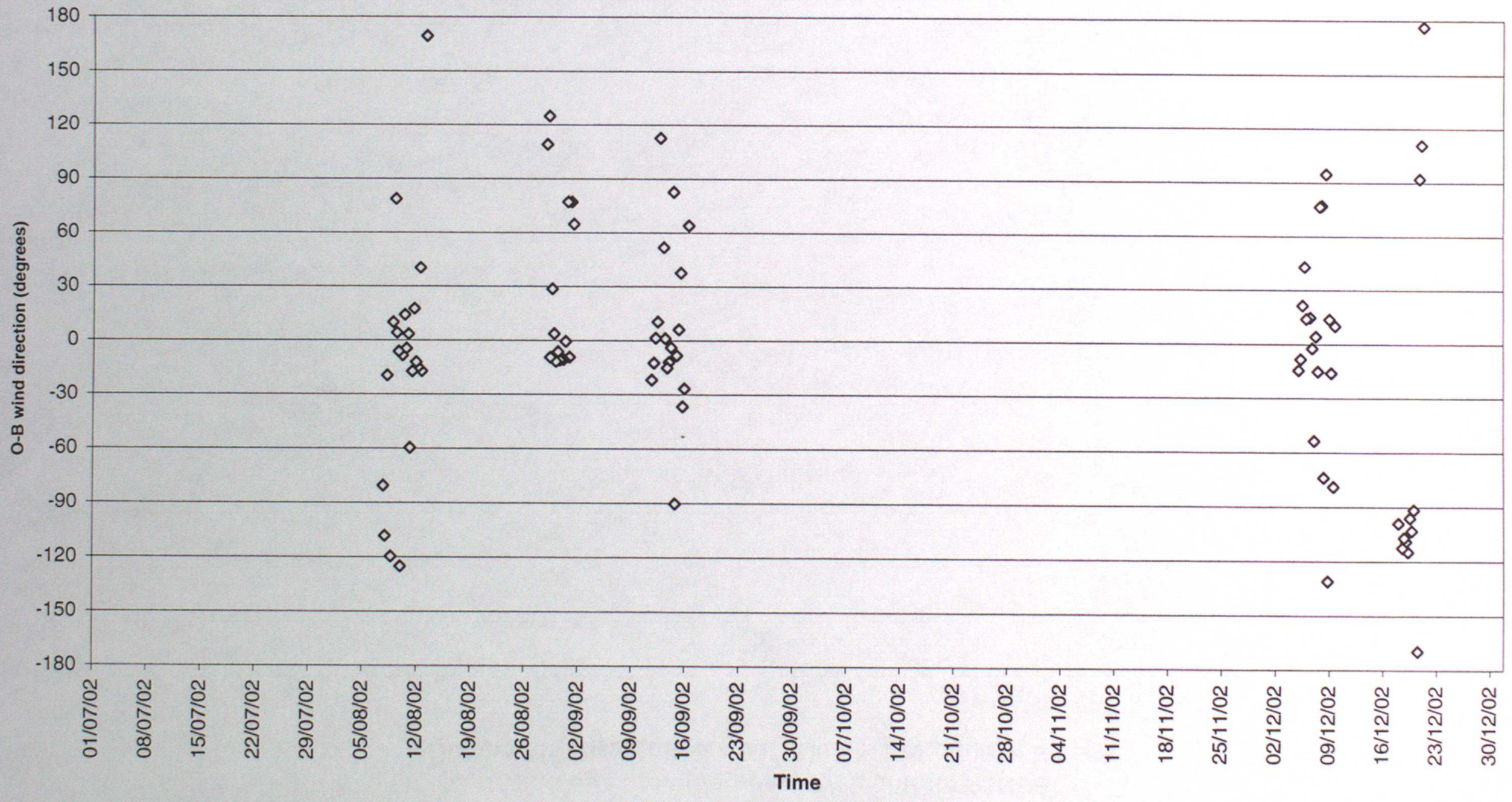
O-B wind direction (degrees) for identifier P3EK7
Number of obs. plotted = 217   Number of outliers = 0

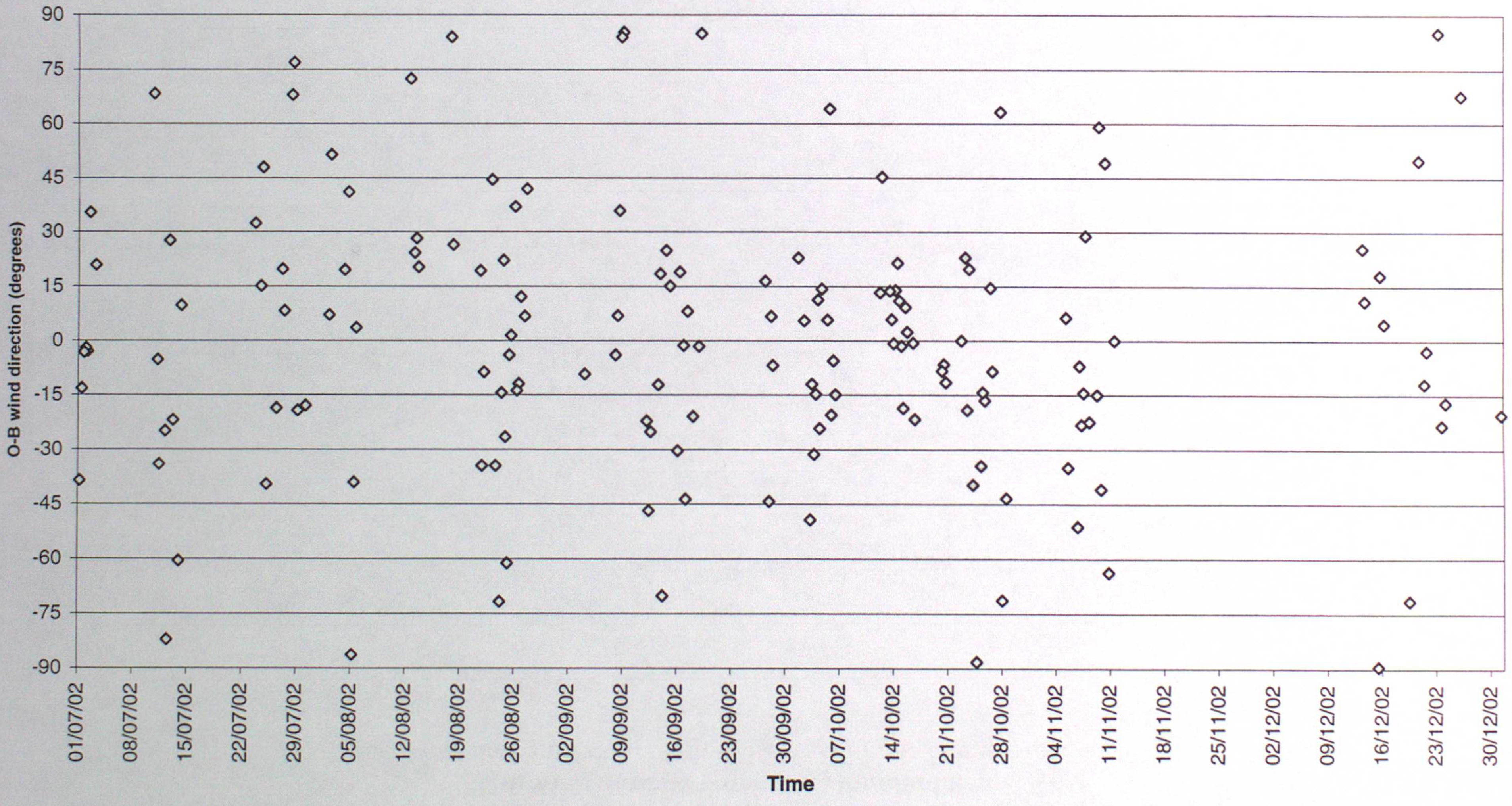




O-B wind direction (degrees) for identifier P3ND5
Number of obs. plotted = 93 Number of outliers = 0

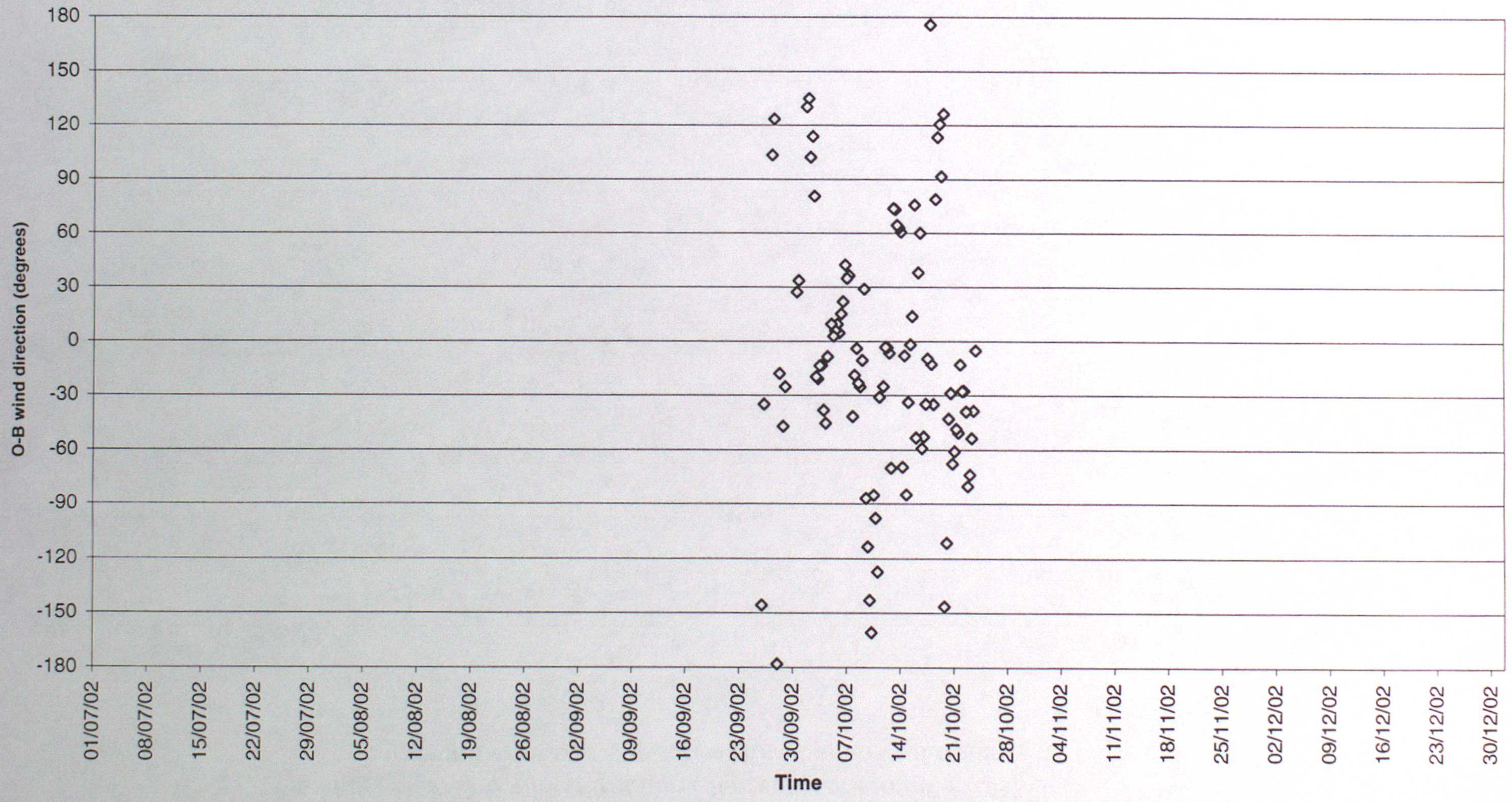
O-B wind direction (degrees) for identifier SLCI
Number of obs. plotted = 85   Number of outliers = 0



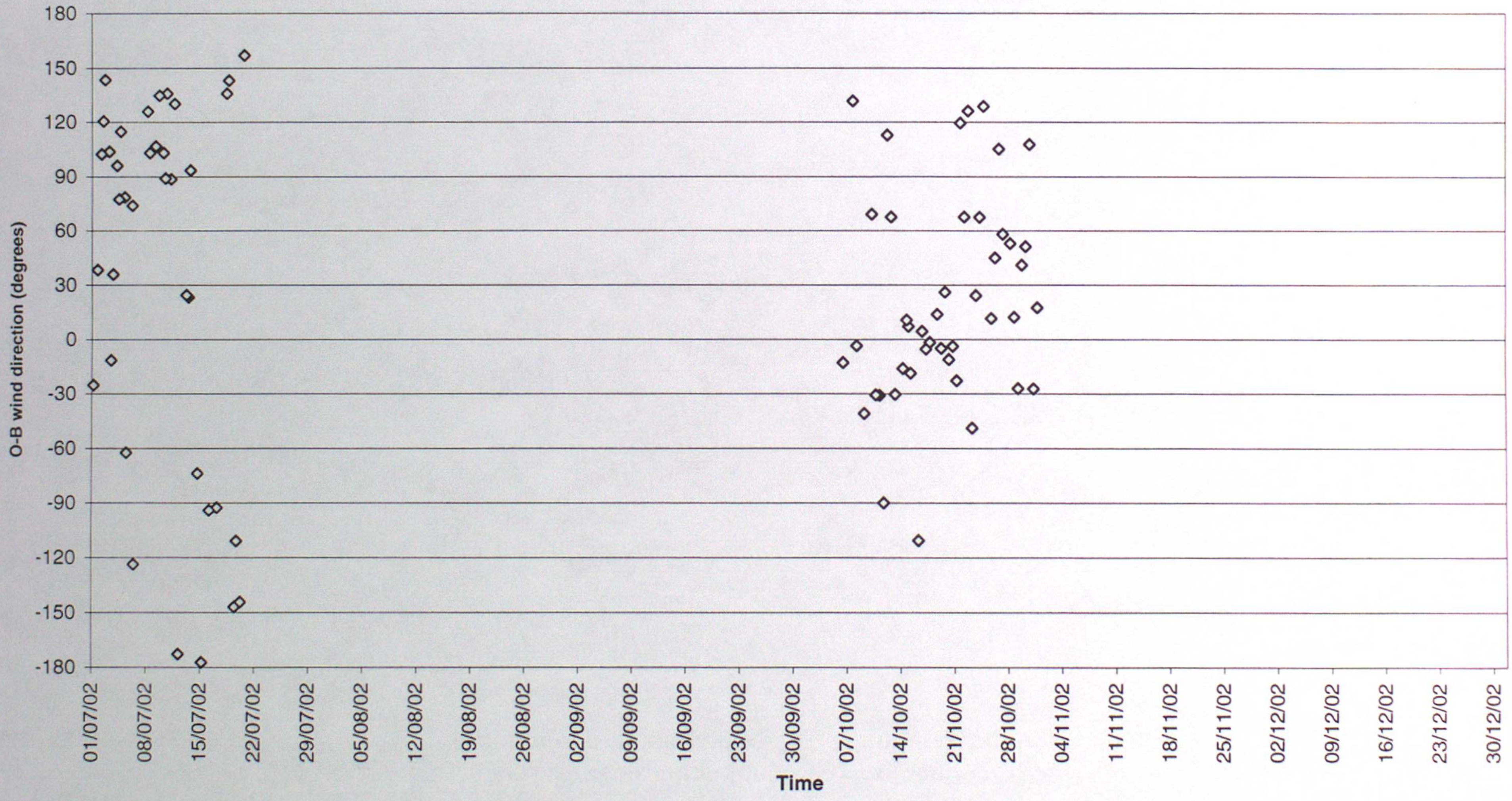


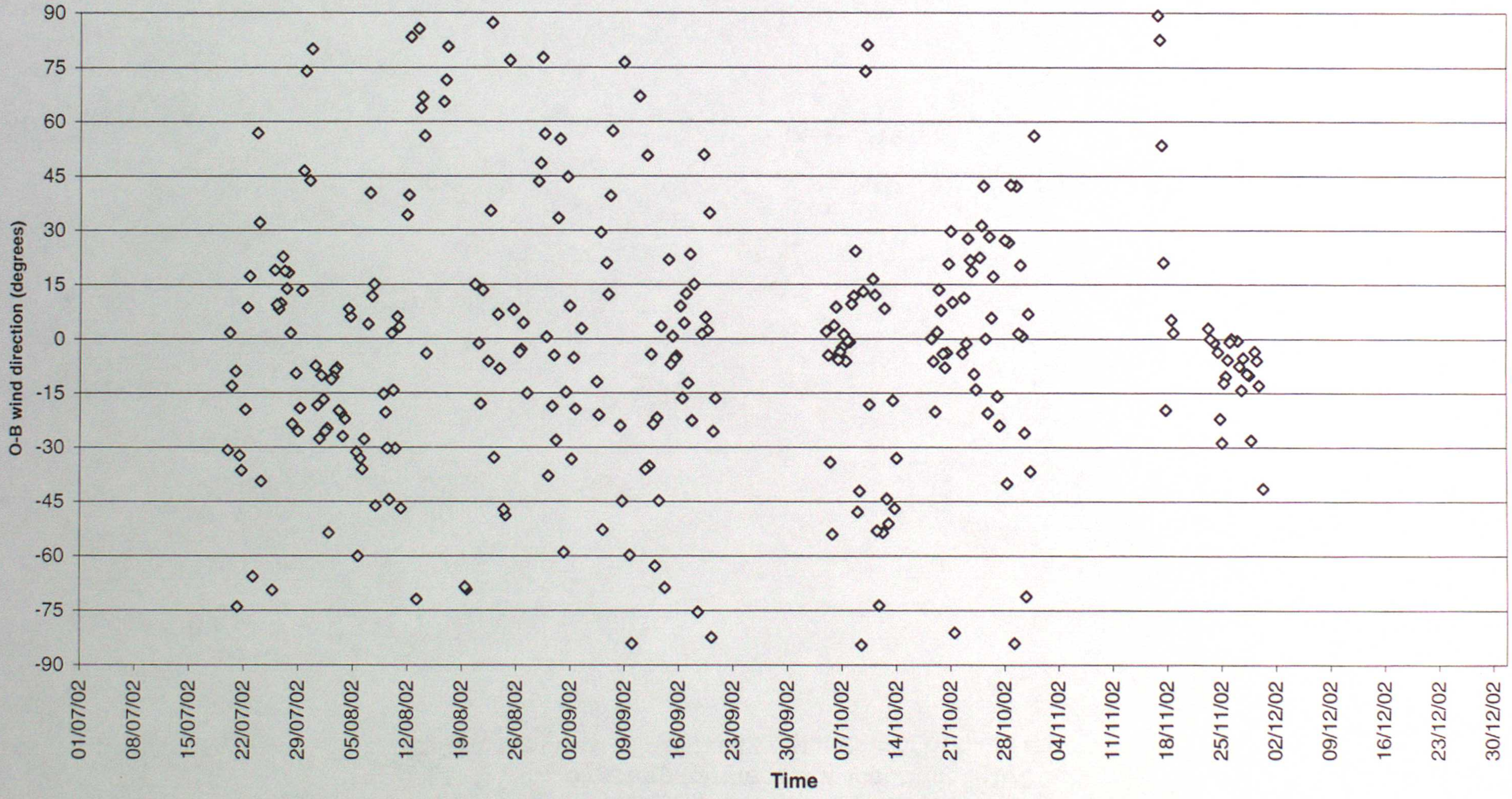
O-B wind direction (degrees) for identifier UBSO
Number of obs. plotted = 157   Number of outliers = 28

O-B wind direction (degrees) for identifier UCTK
Number of obs. plotted = 96   Number of outliers = 0



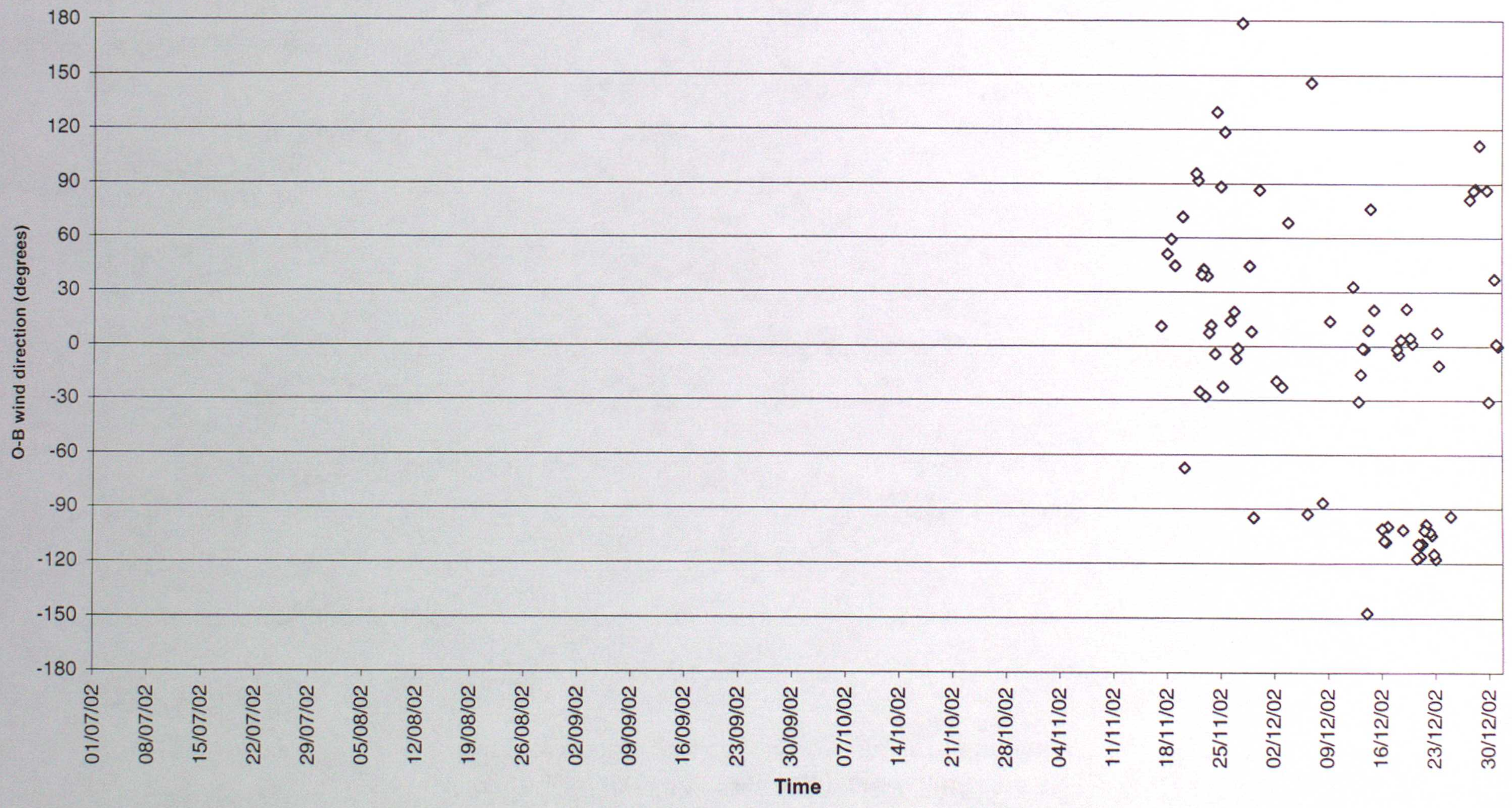
O-B wind direction (degrees) for identifier UCUC
Number of obs. plotted = 82   Number of outliers = 0

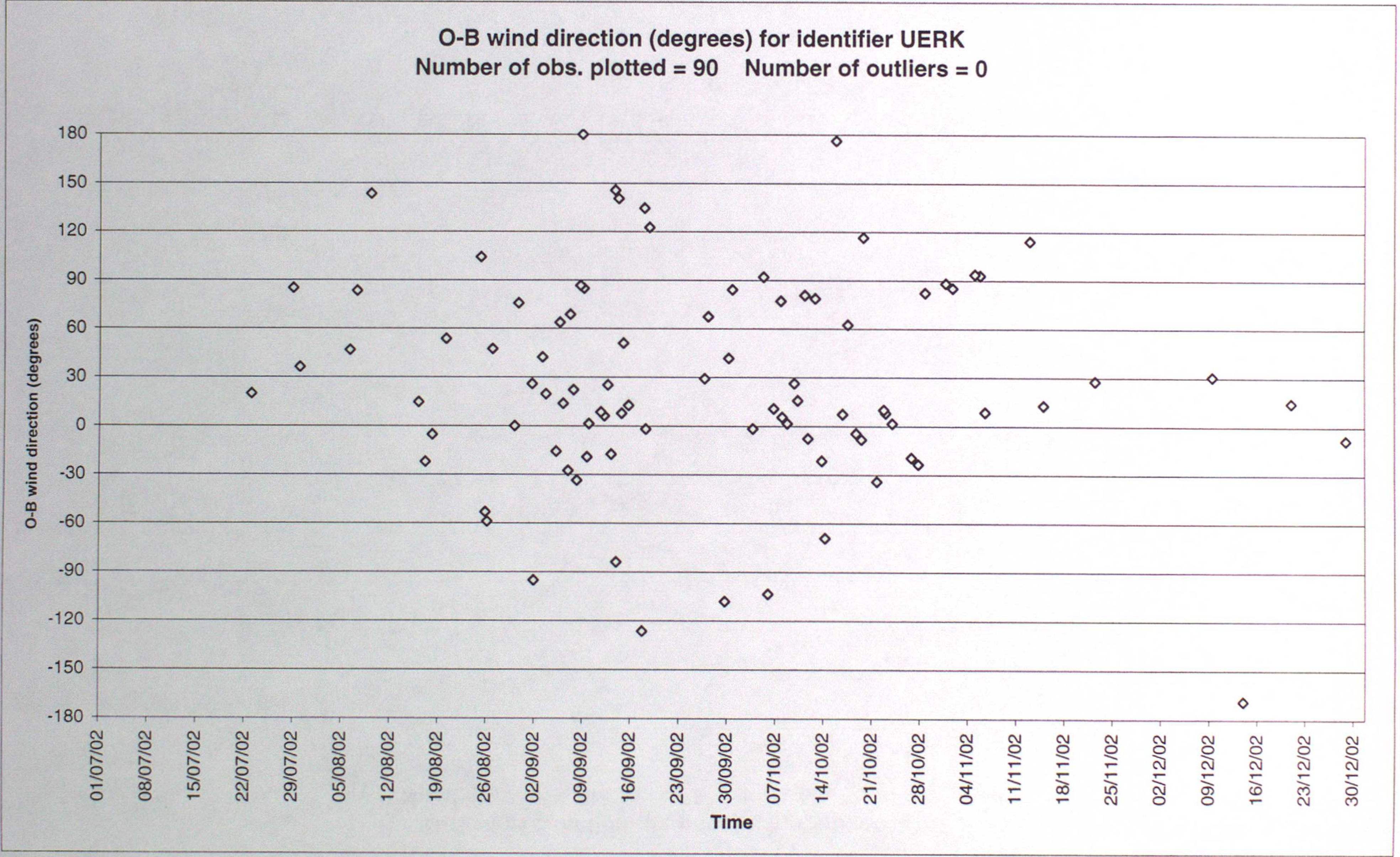




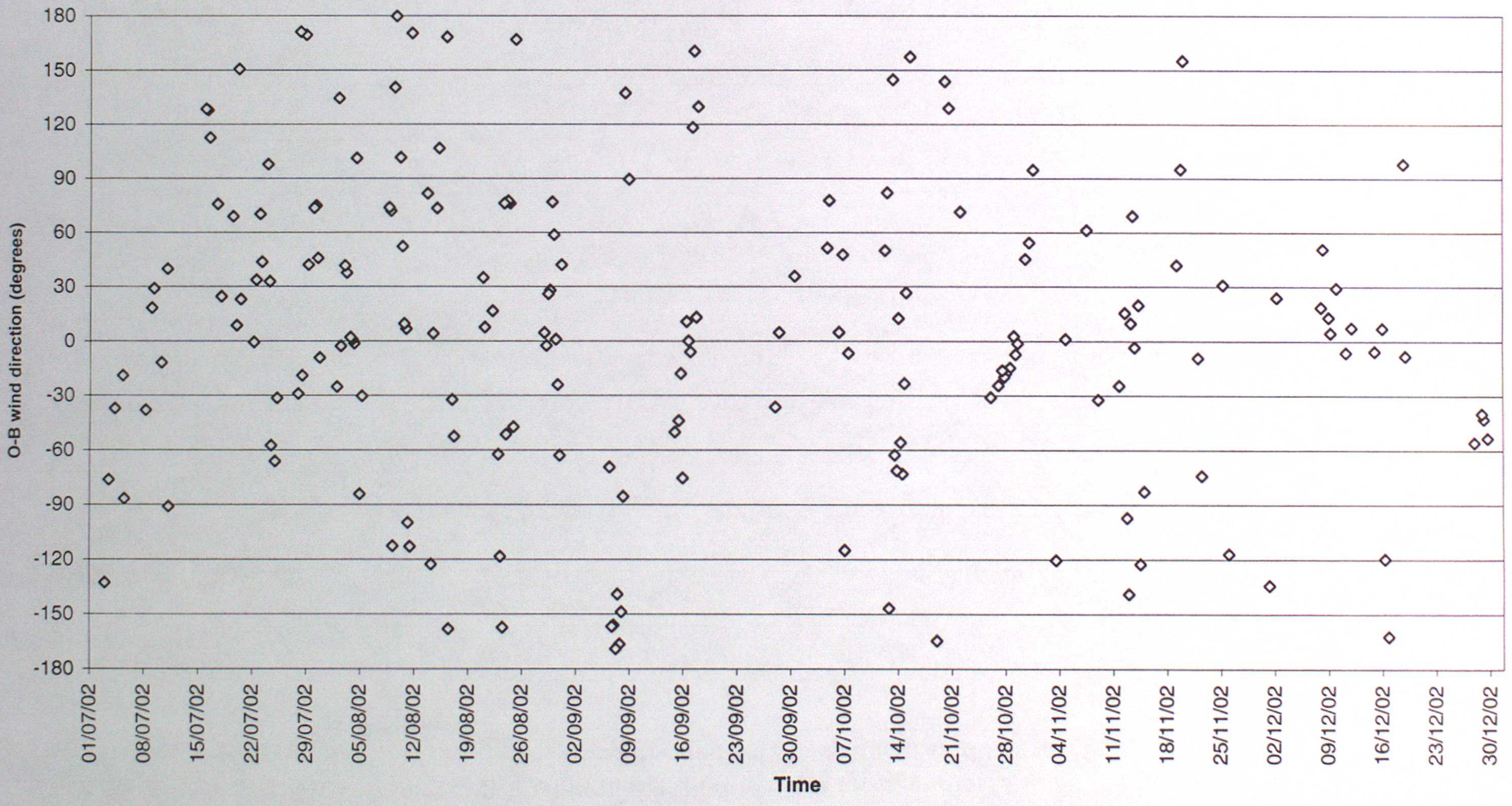
O-B wind direction (degrees) for identifier UCUF
Number of obs. plotted = 276   Number of outliers = 60

O-B wind direction (degrees) for identifier UDDE
Number of obs. plotted = 78 Number of outliers = 0

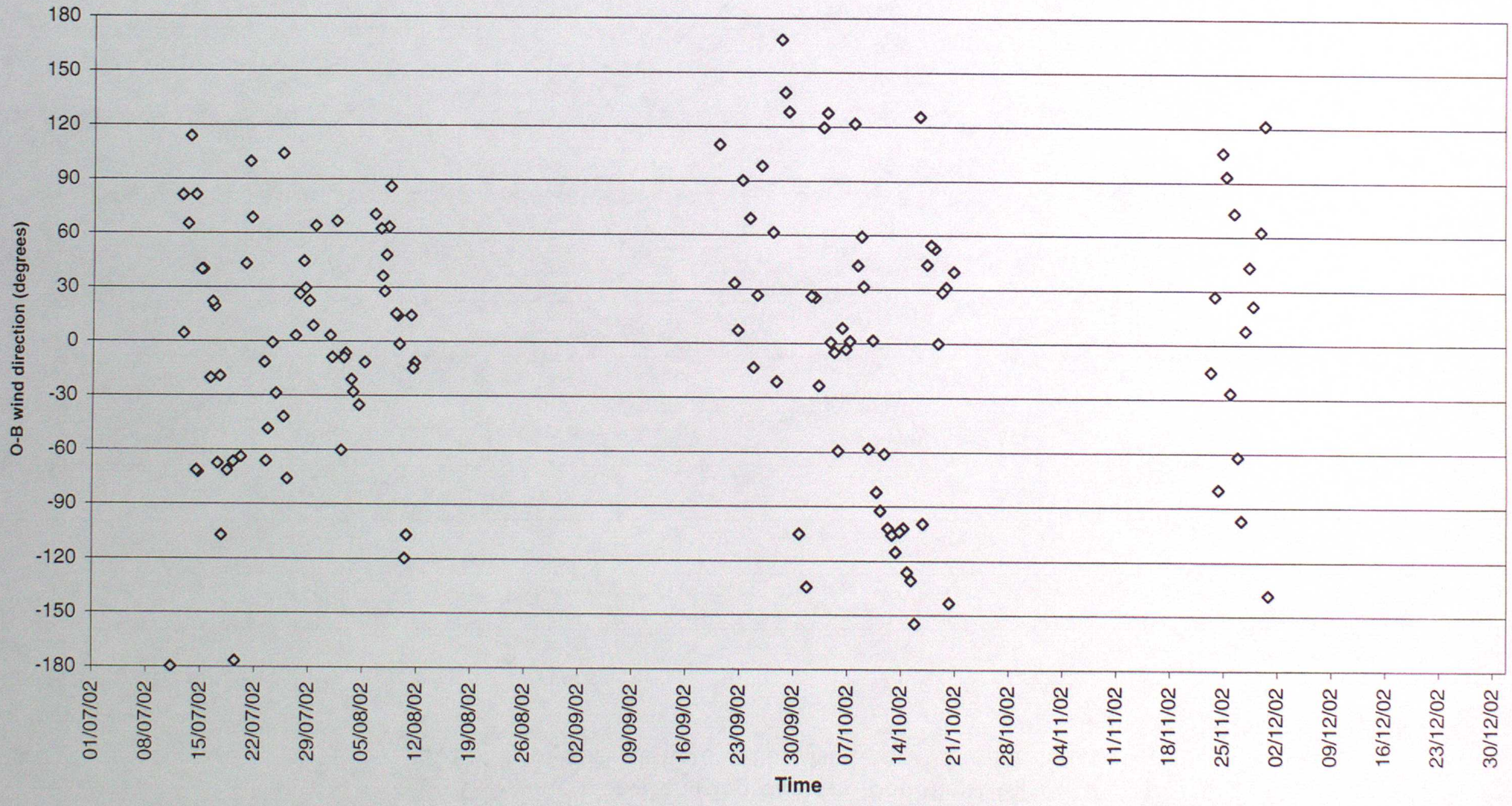



O-B wind direction (degrees) for identifier UERK
Number of obs. plotted = 90   Number of outliers = 0
O-B wind direction (degrees)
180
150
120
90
60
30
0
-30
-60
-90
-120
-150
-180
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

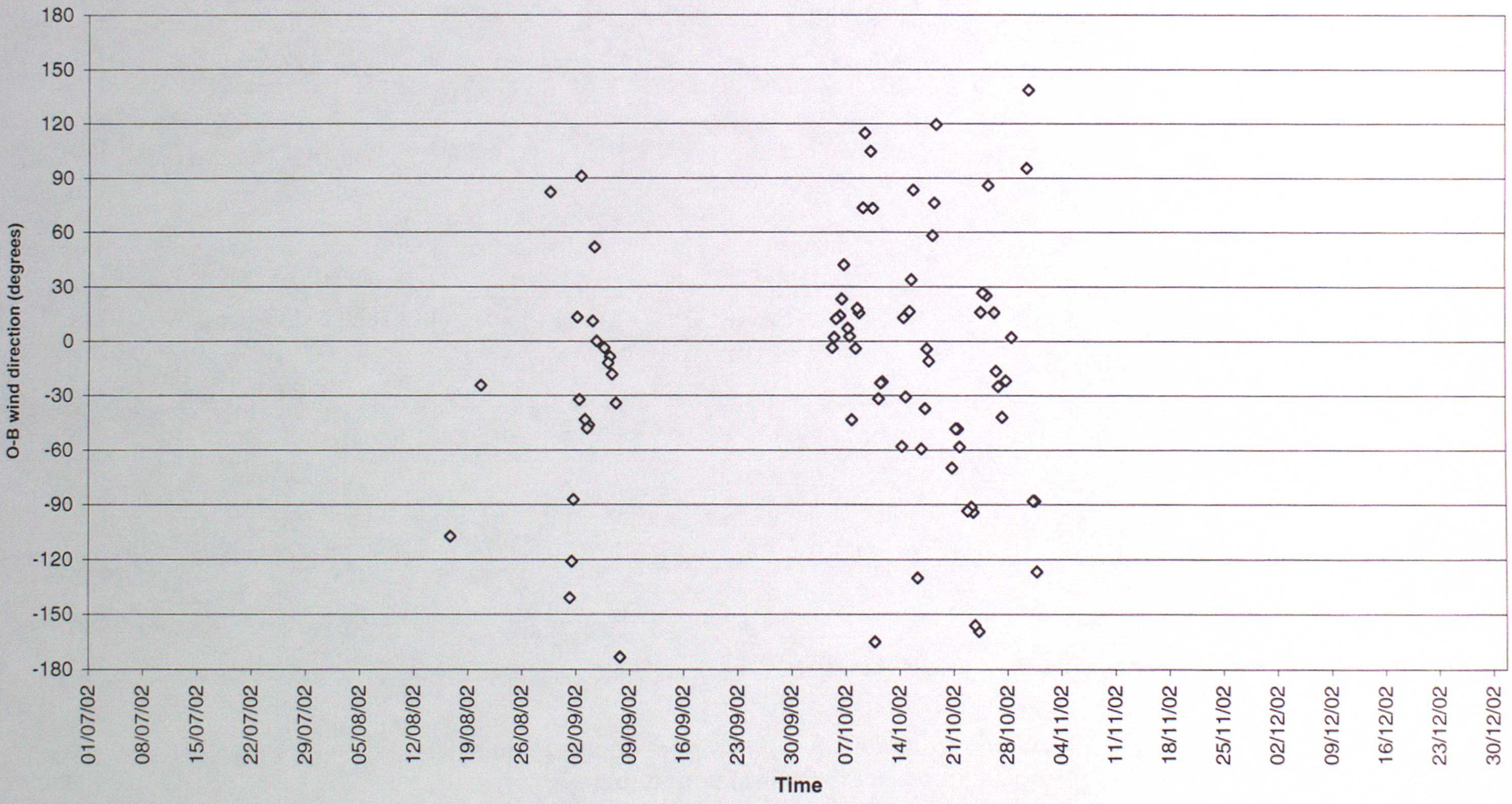
O-B wind direction (degrees) for identifier UGTV
Number of obs. plotted = 190   Number of outliers = 0

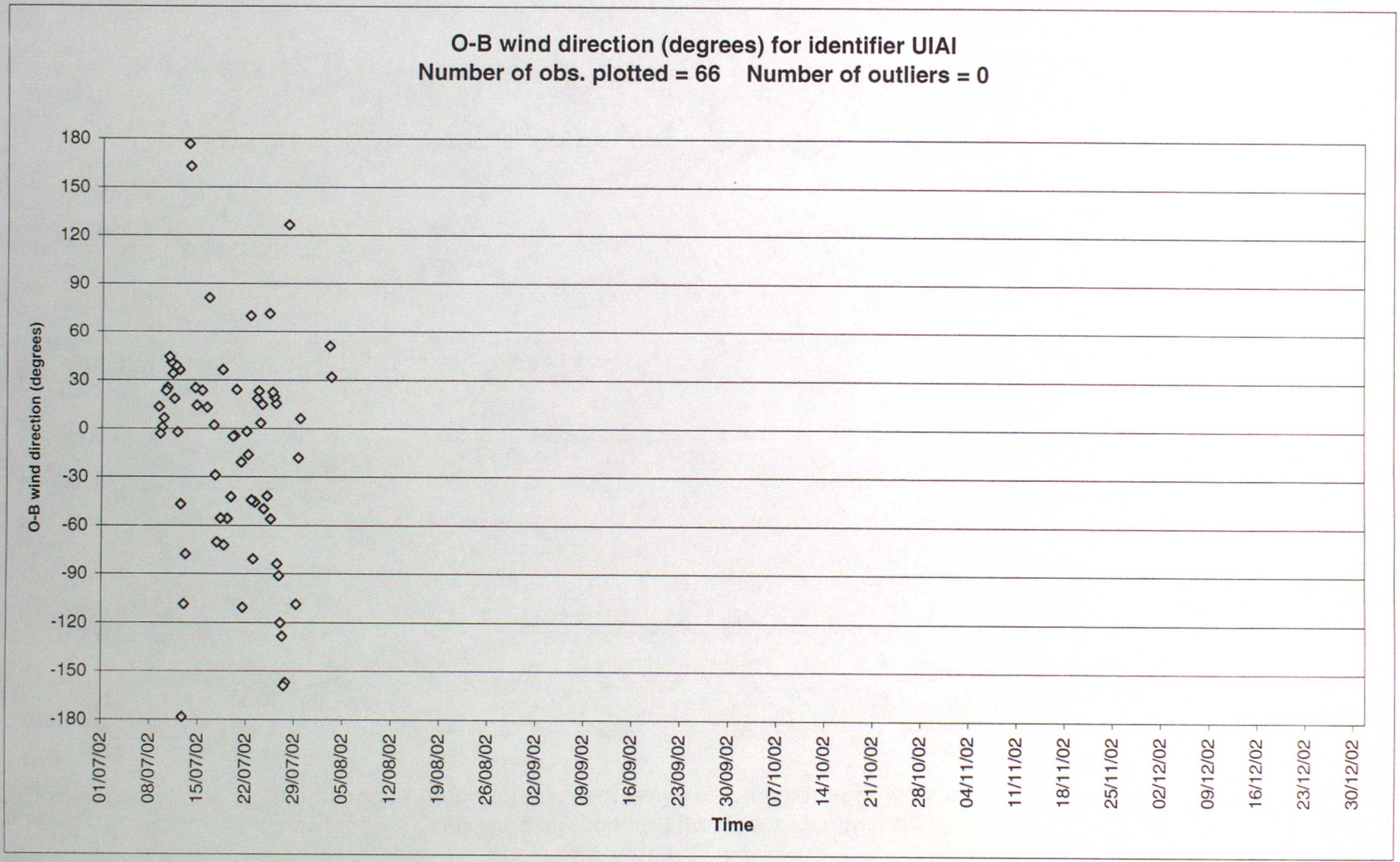


O-B wind direction (degrees) for identifier UHLE
Number of obs. plotted = 131   Number of outliers = 0

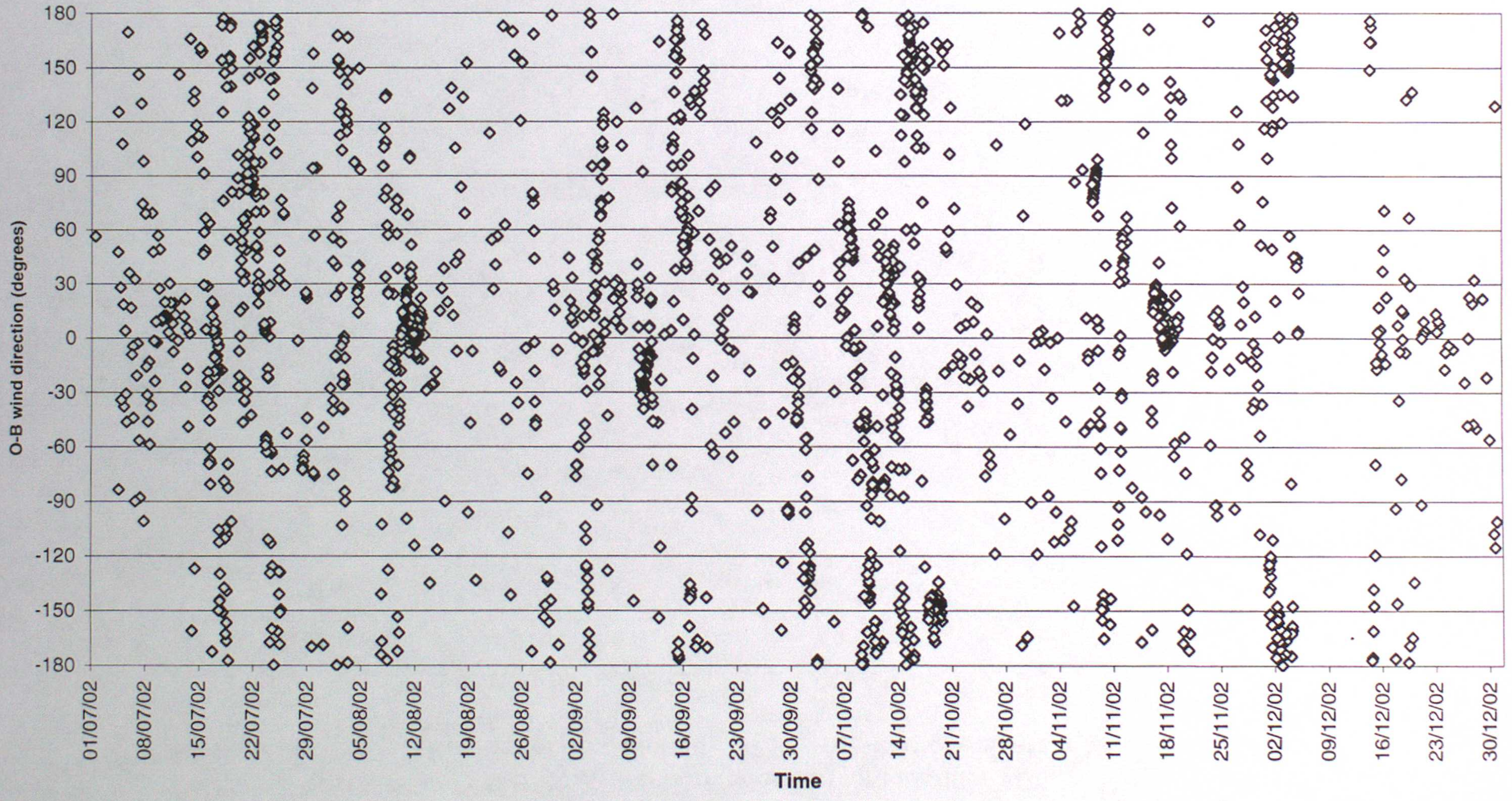


O-B wind direction (degrees) for identifier UIAG
Number of obs. plotted = 79   Number of outliers = 0



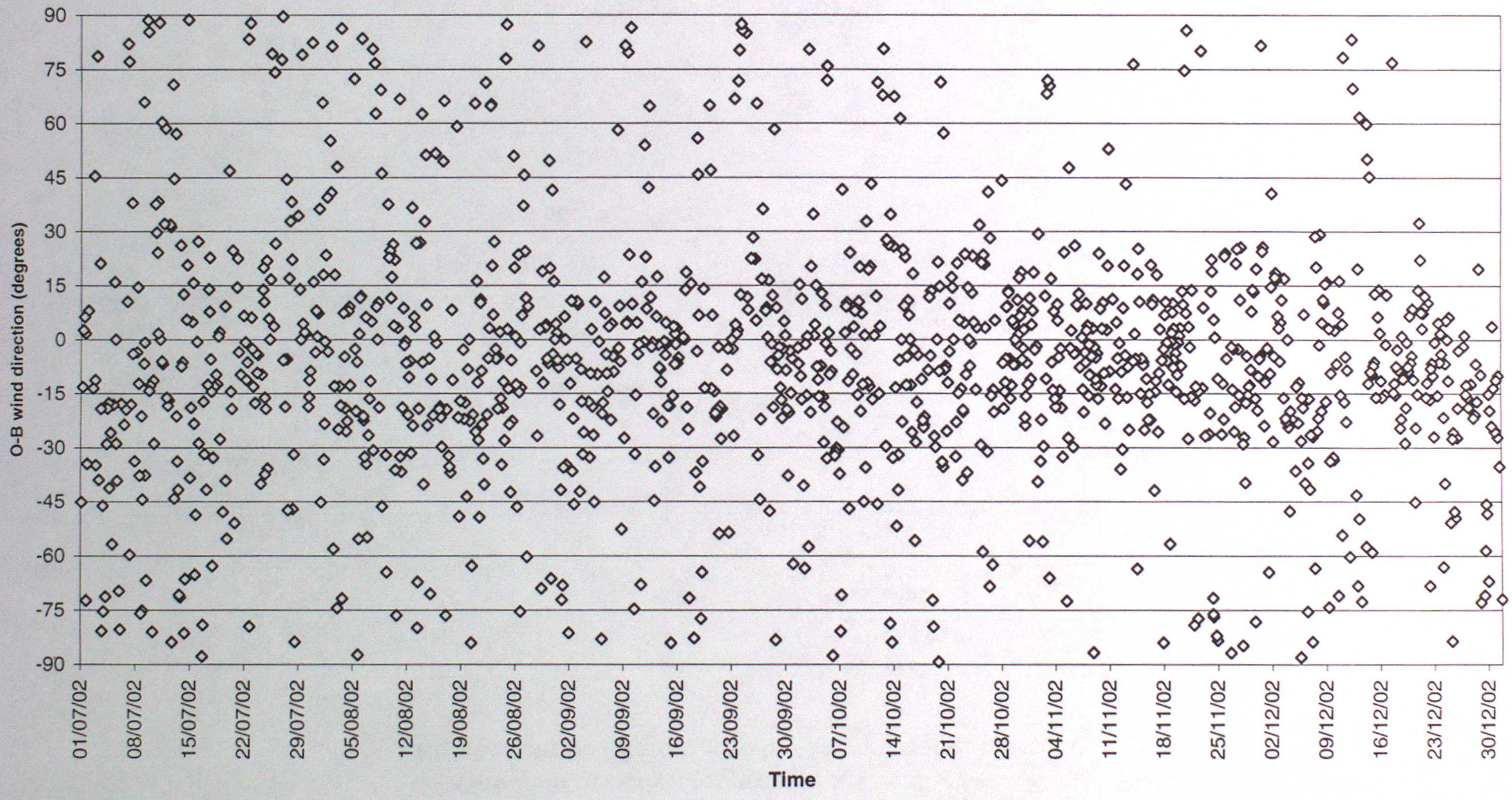


O-B wind direction (degrees) for identifier UIAI
Number of obs. plotted = 66   Number of outliers = 0

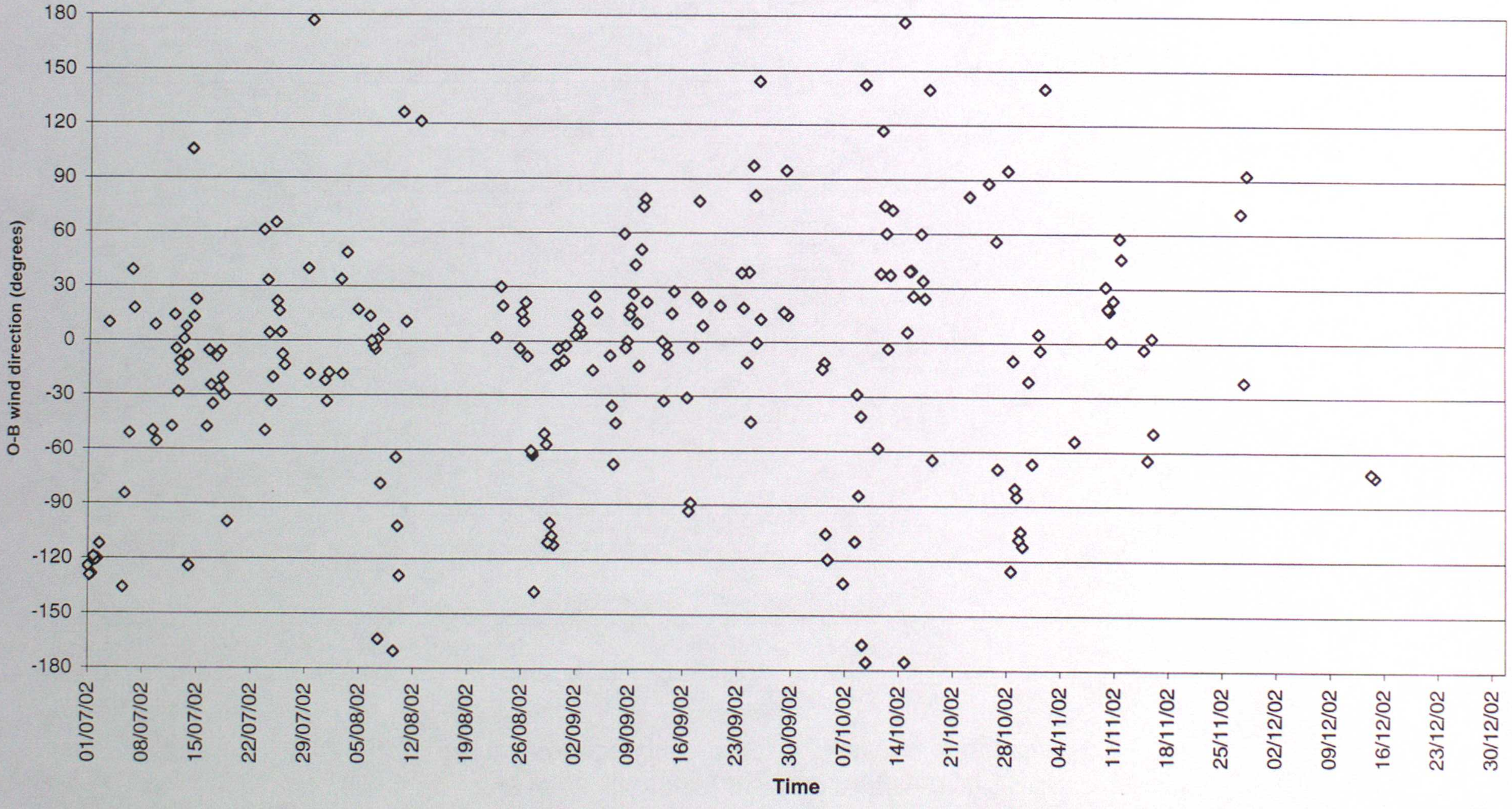


O-B wind direction (degrees) for identifier VCLM
Number of obs. plotted = 1689   Number of outliers = 0

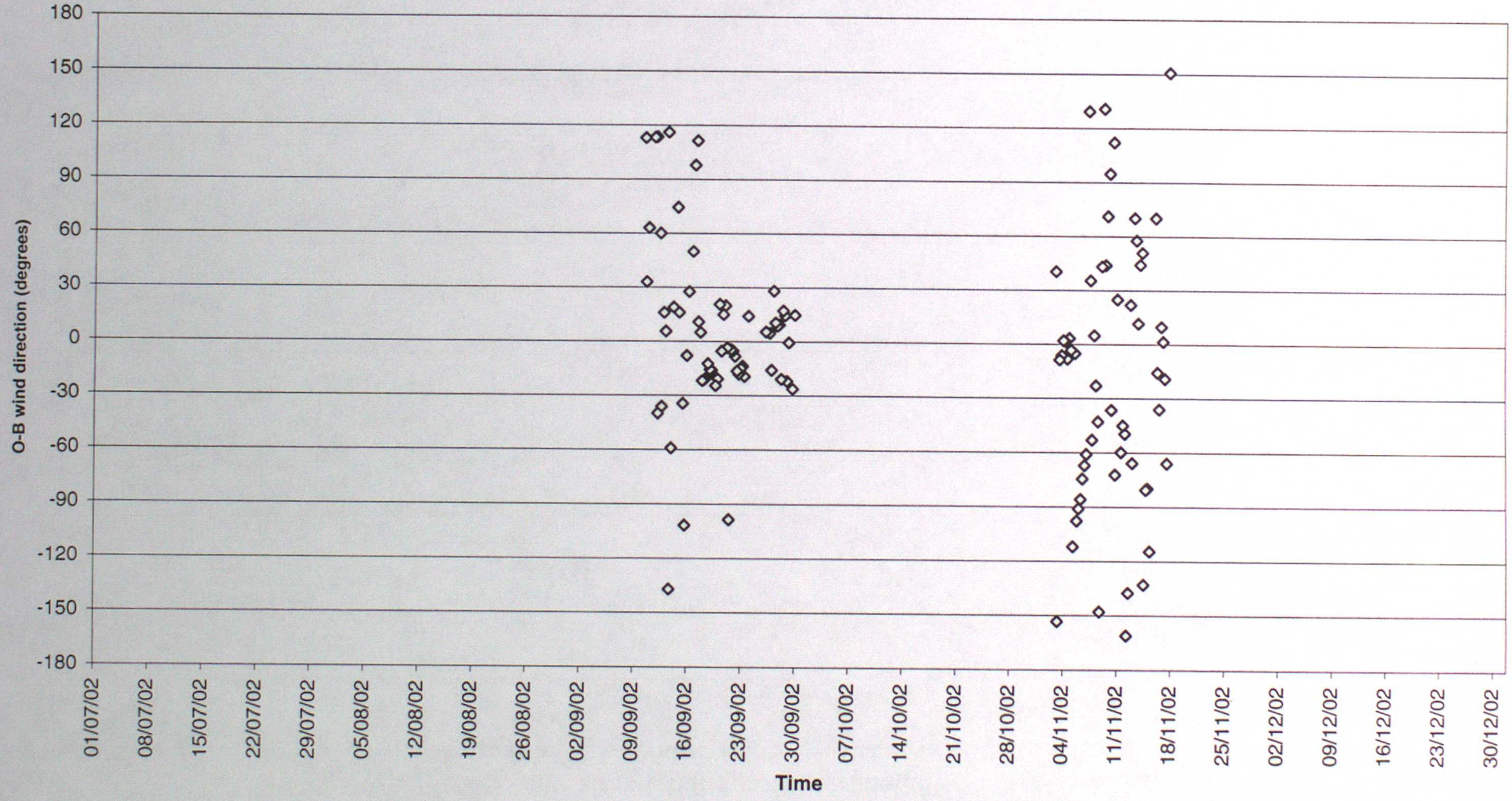
O-B wind direction (degrees) for identifier VOCJ
Number of obs. plotted = 1259   Number of outliers = 199



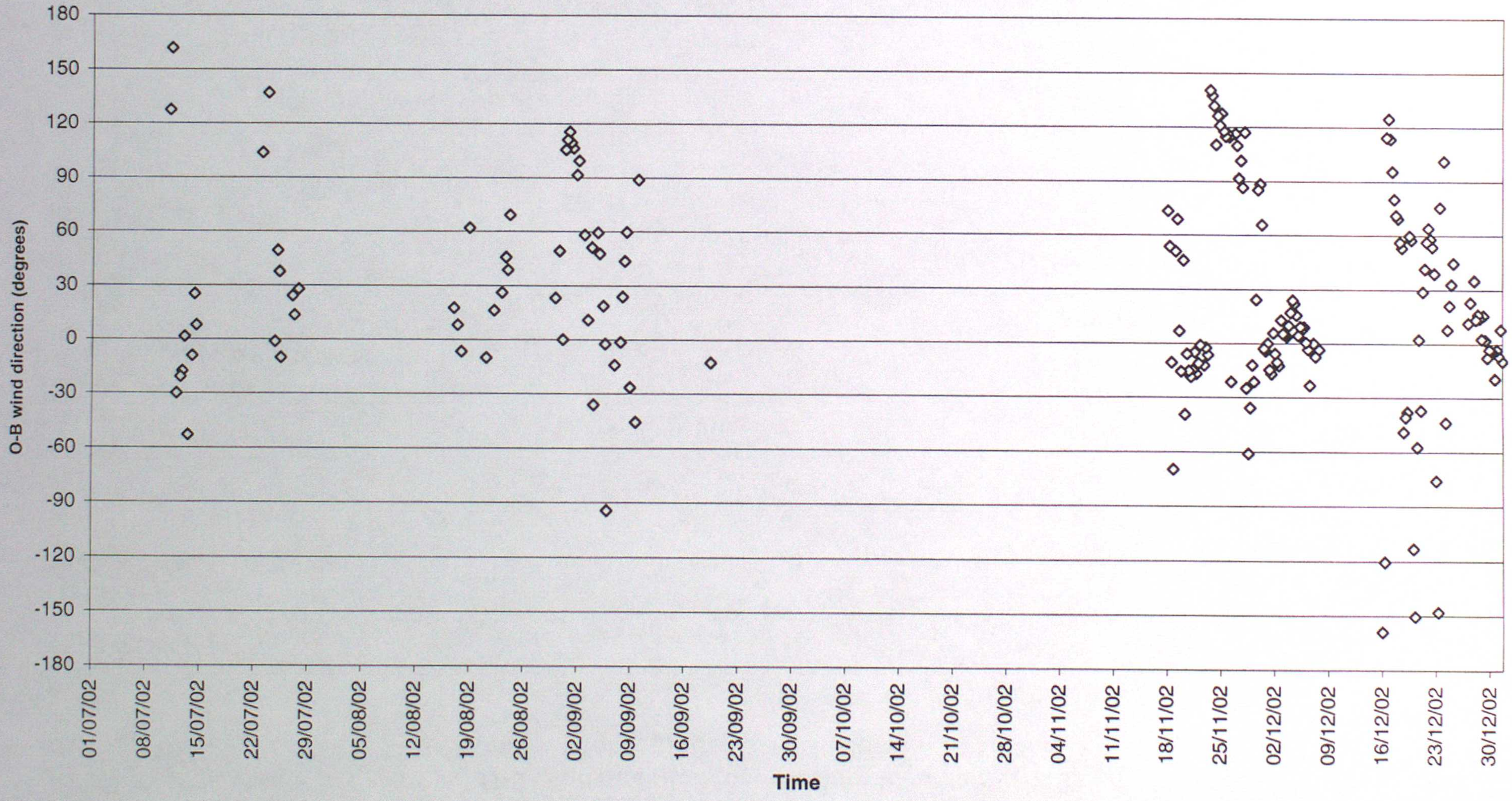
O-B wind direction (degrees) for identifier VRUB2
Number of obs. plotted = 215   Number of outliers = 0



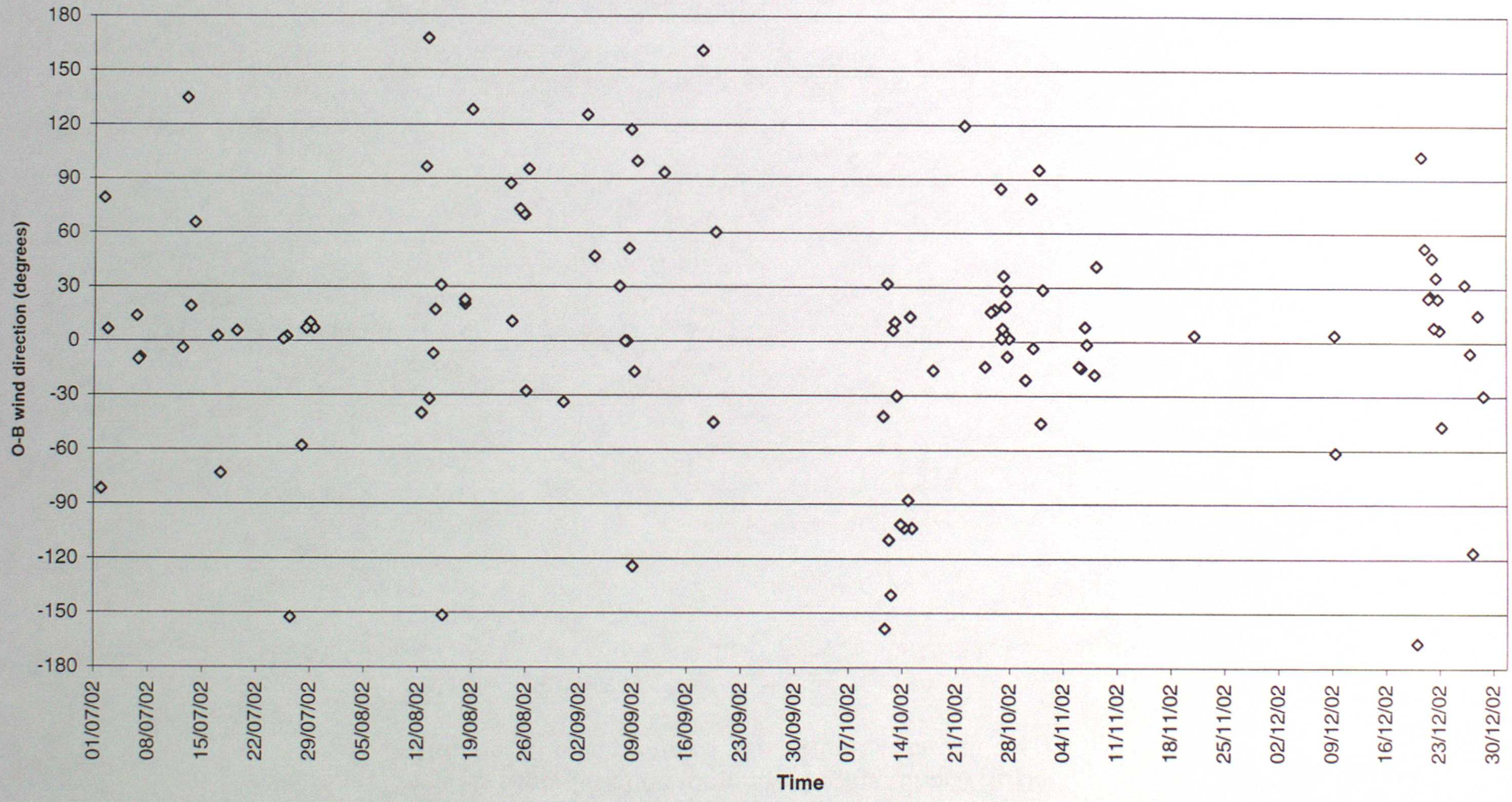
O-B wind direction (degrees) for identifier VRUR
Number of obs. plotted = 119   Number of outliers = 0



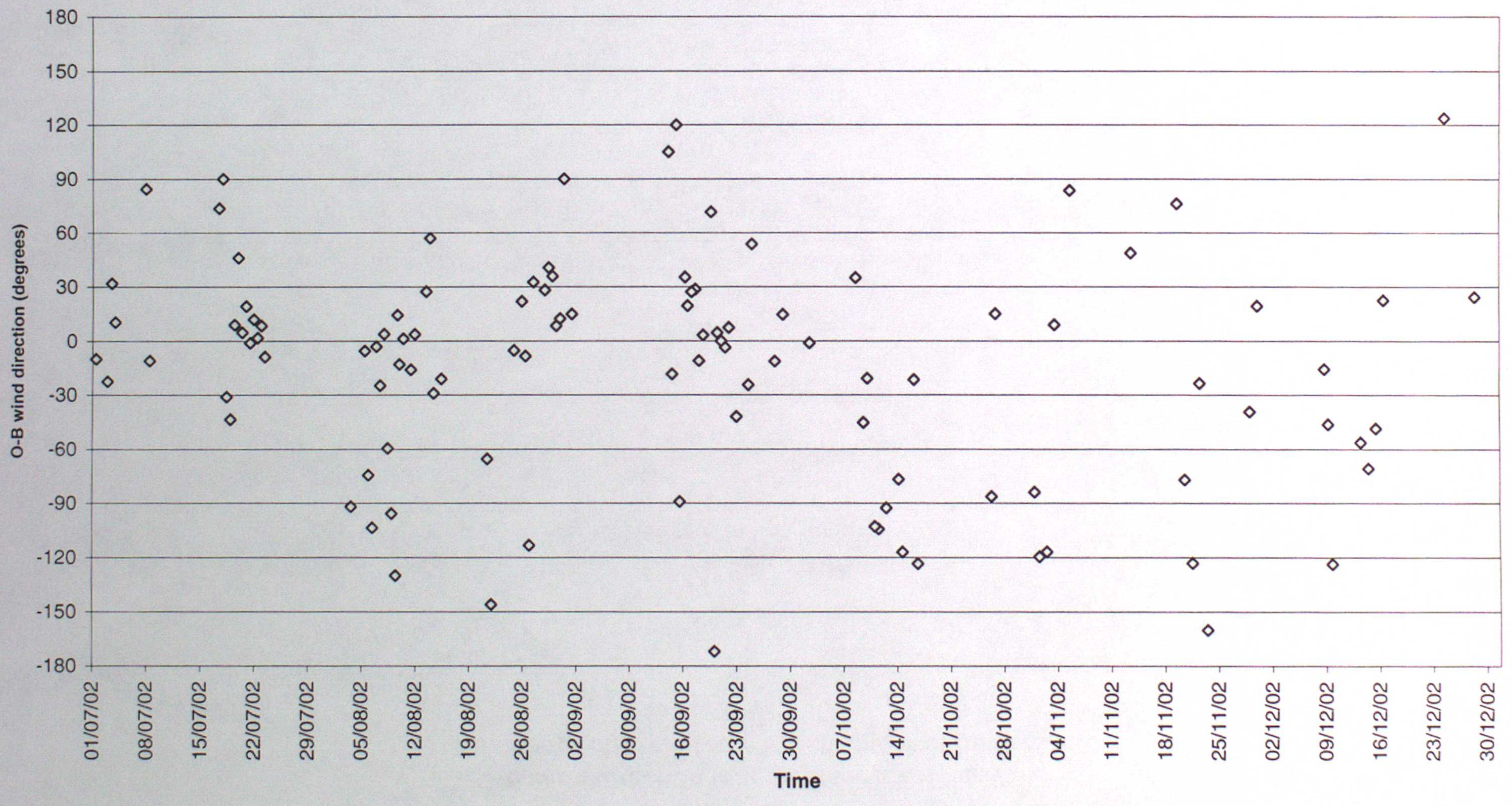
O-B wind direction (degrees) for identifier VRUR6
Number of obs. plotted = 188 Number of outliers = 0

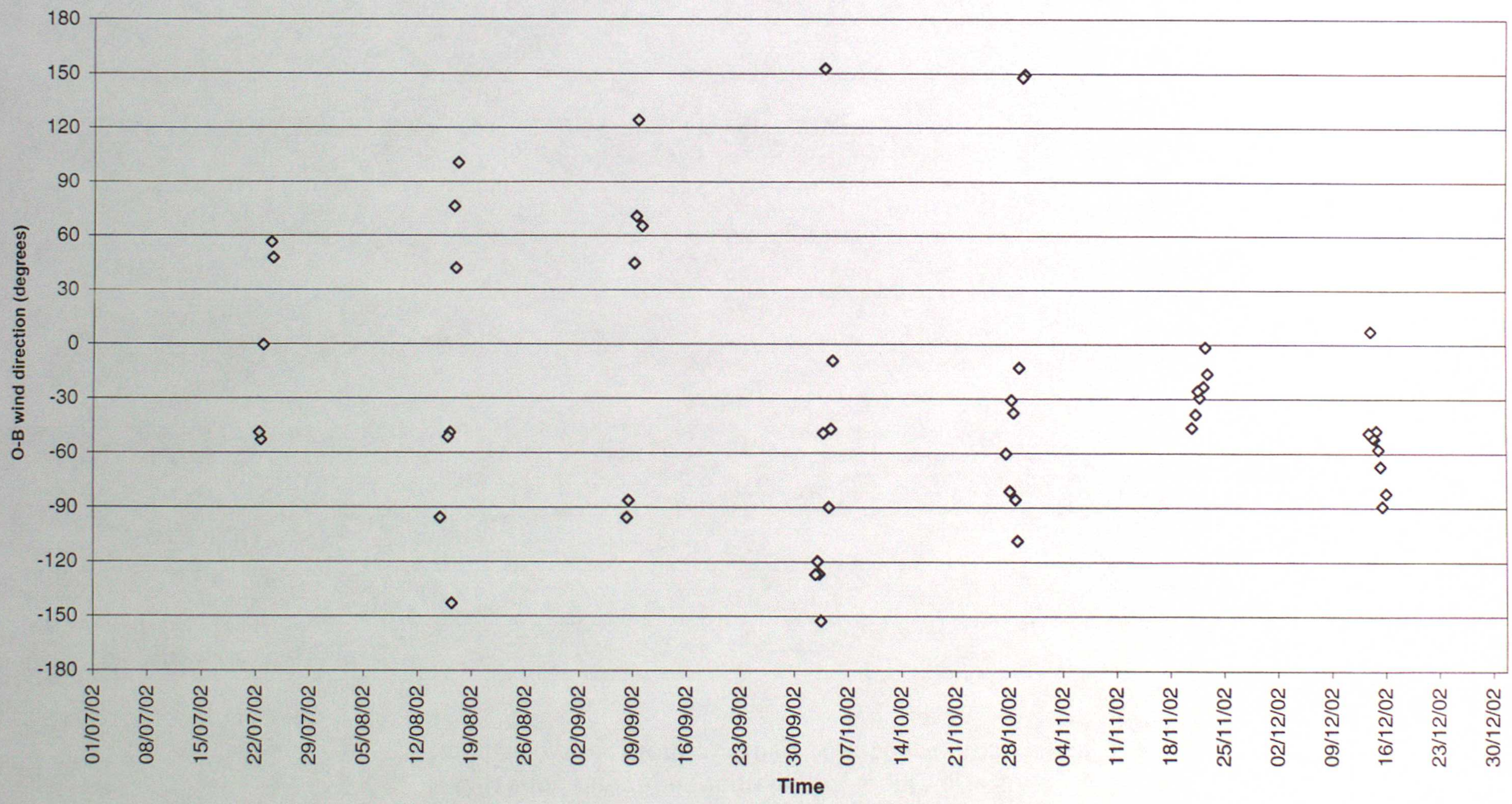


O-B wind direction (degrees) for identifier VRWS3
Number of obs. plotted = 111   Number of outliers = 0



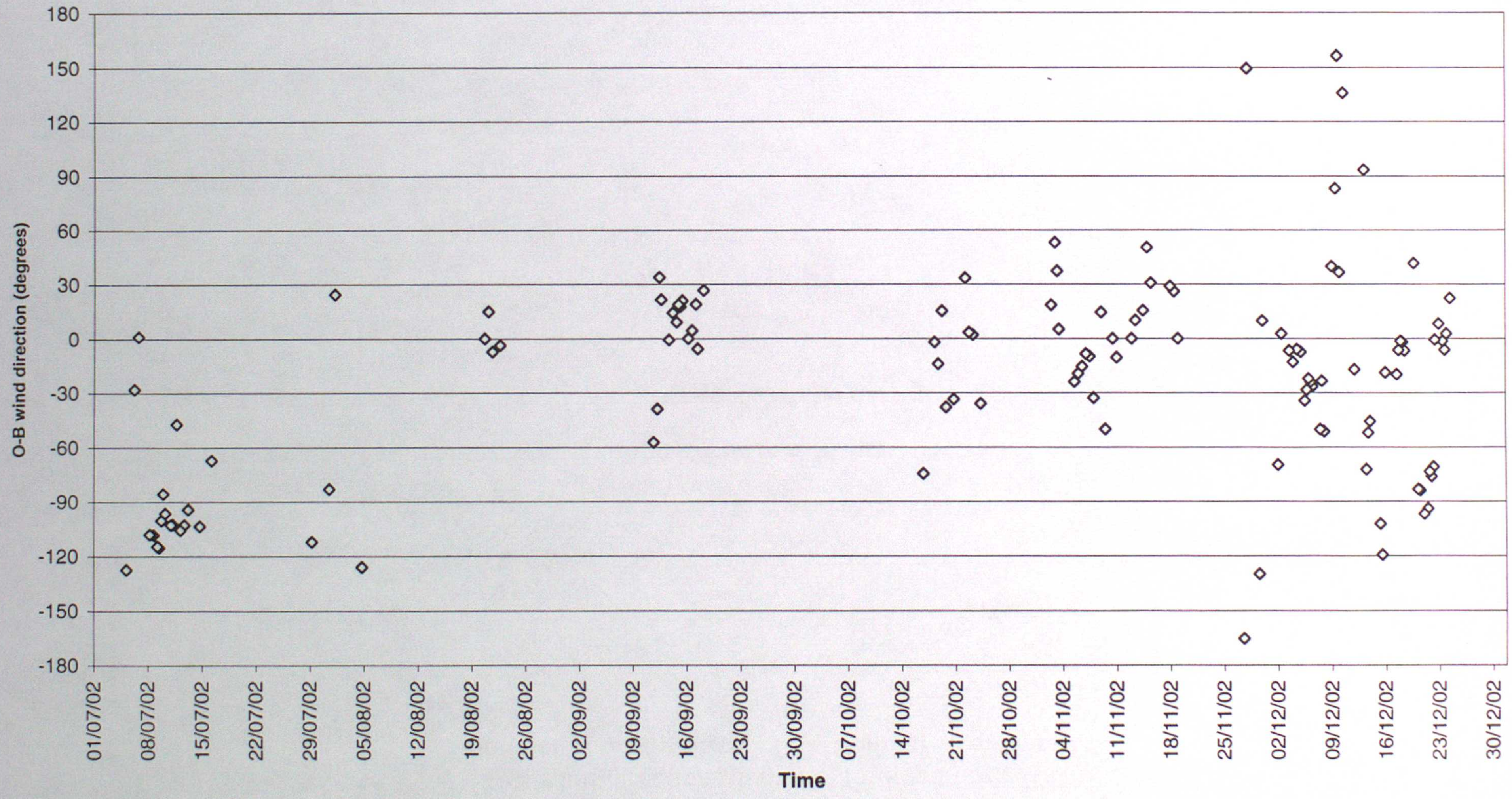
O-B wind direction (degrees) for identifier VSUA7
Number of obs. plotted = 109 Number of outliers = 0



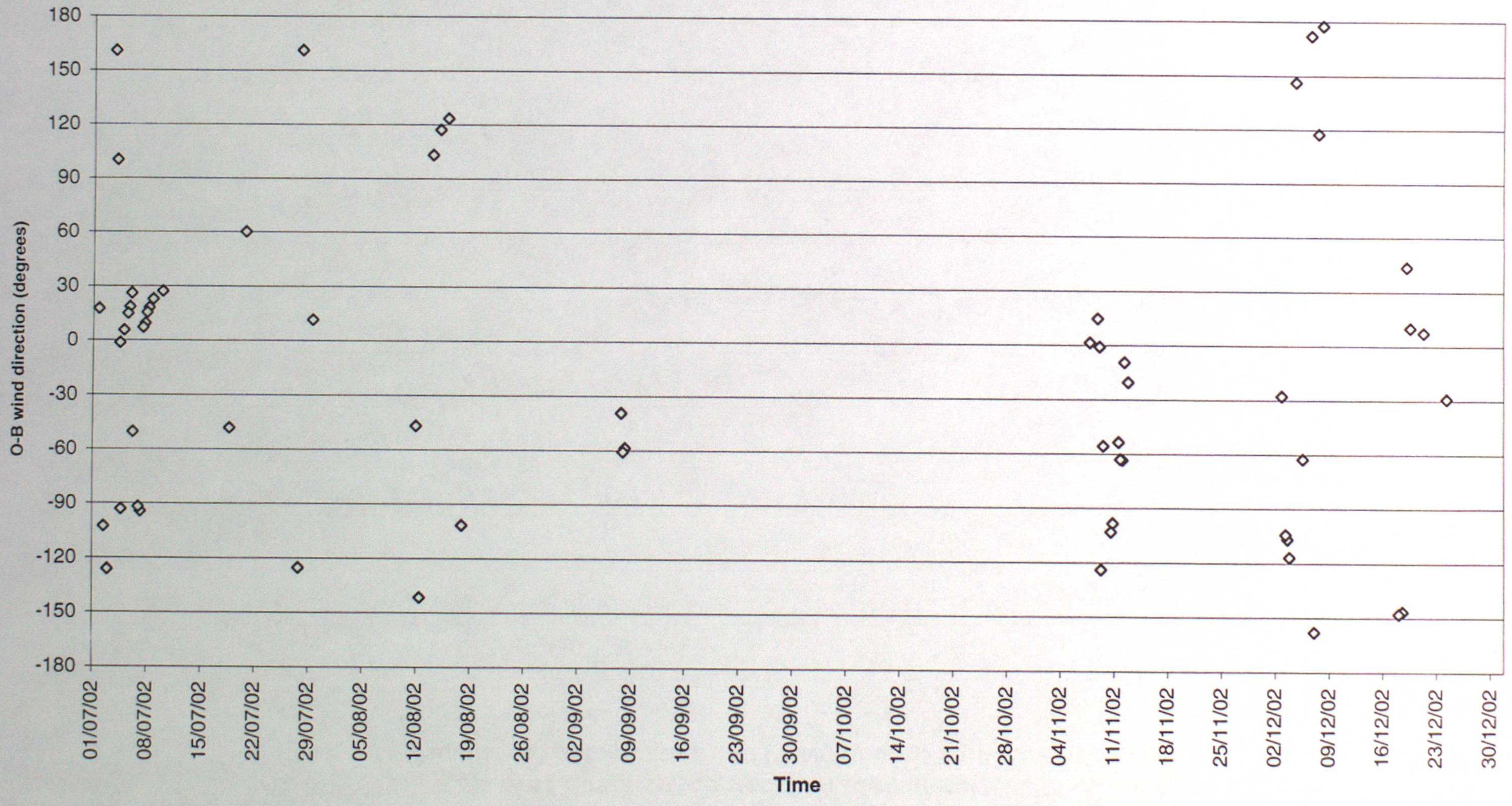


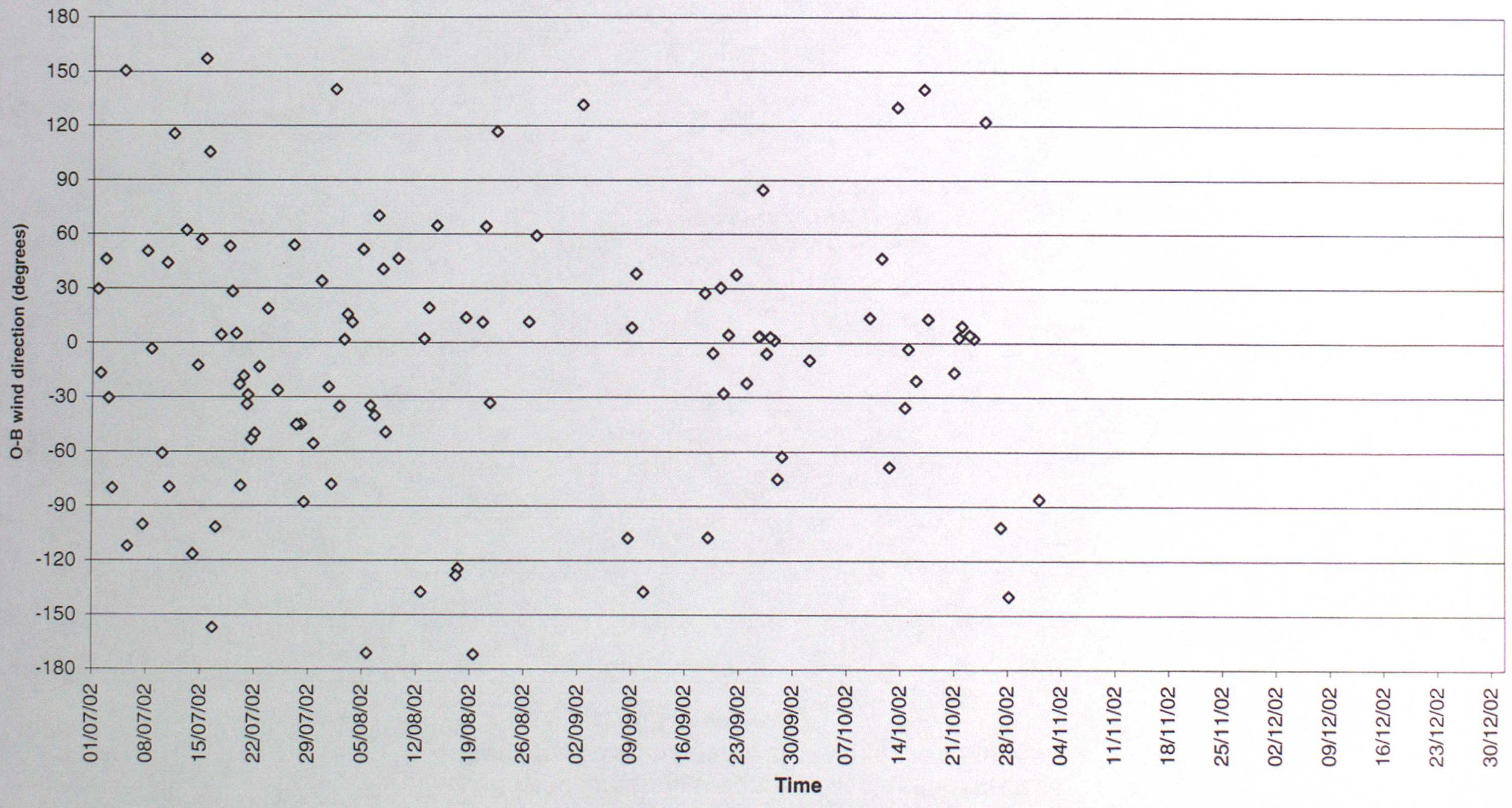
O-B wind direction (degrees) for identifier V2AF1
Number of obs. plotted = 52   Number of outliers = 0

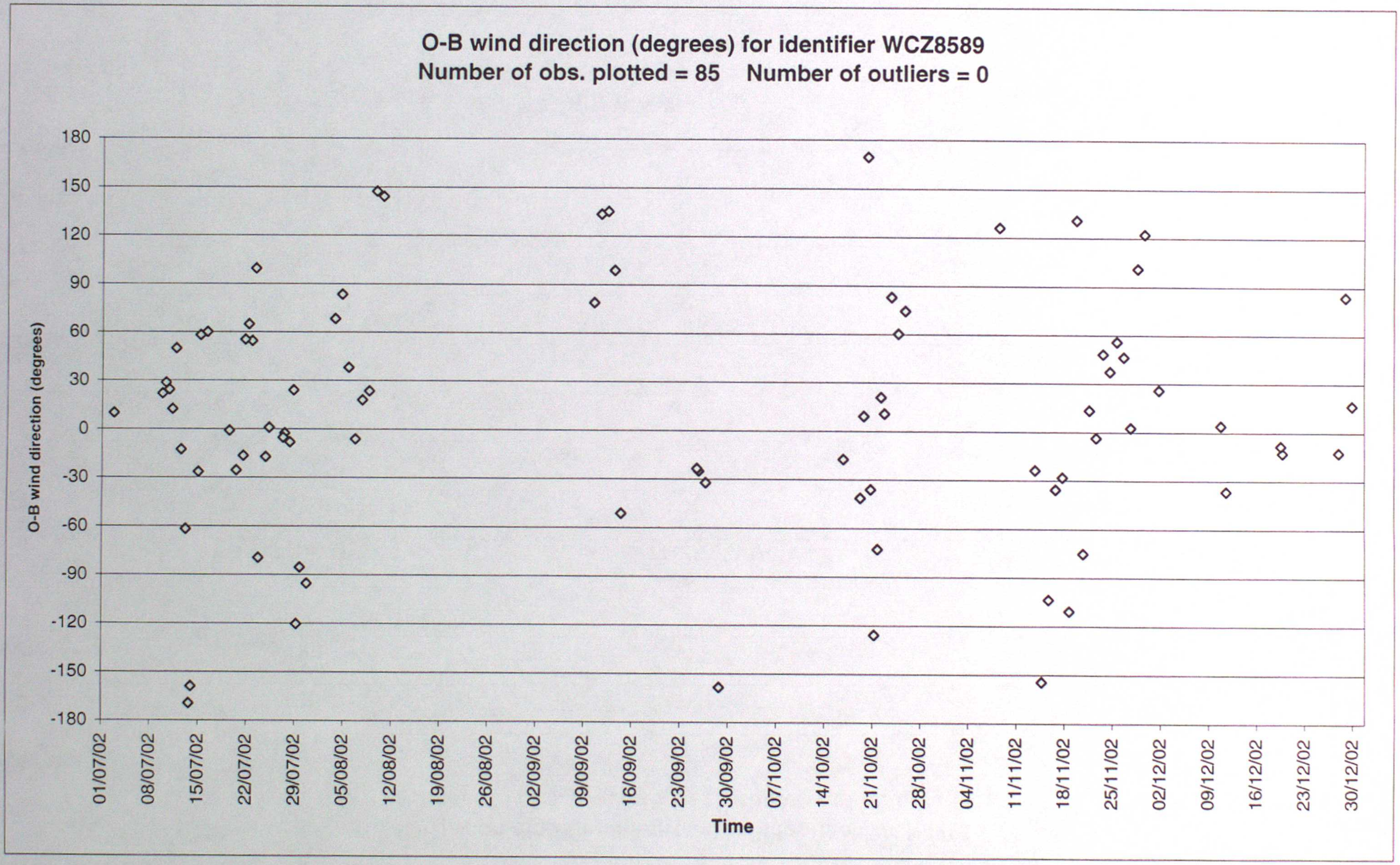
O-B wind direction (degrees) for identifier V7CG5
Number of obs. plotted = 123   Number of outliers = 0



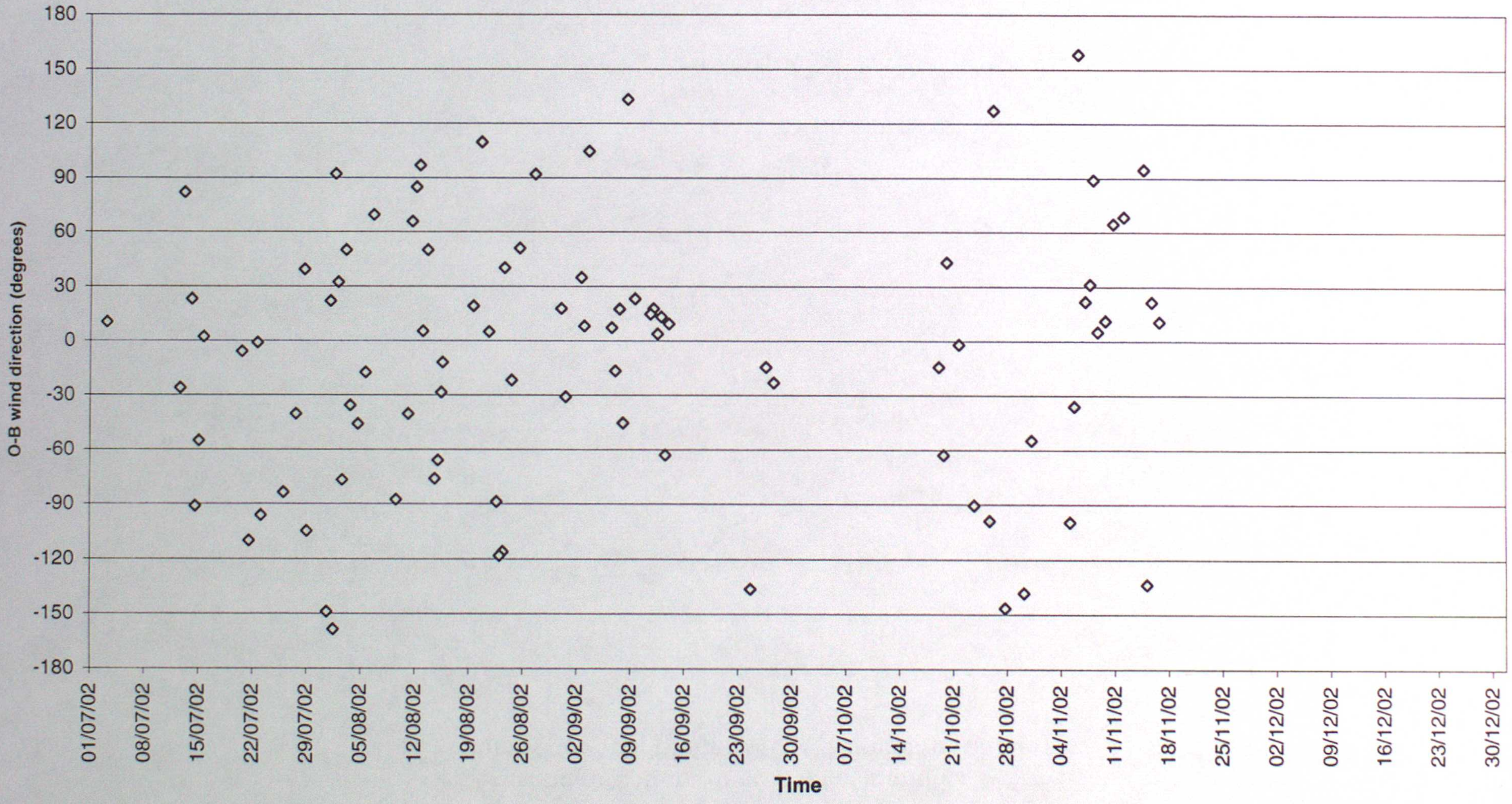
O-B wind direction (degrees) for identifier V7DQ8
Number of obs. plotted = 62   Number of outliers = 0



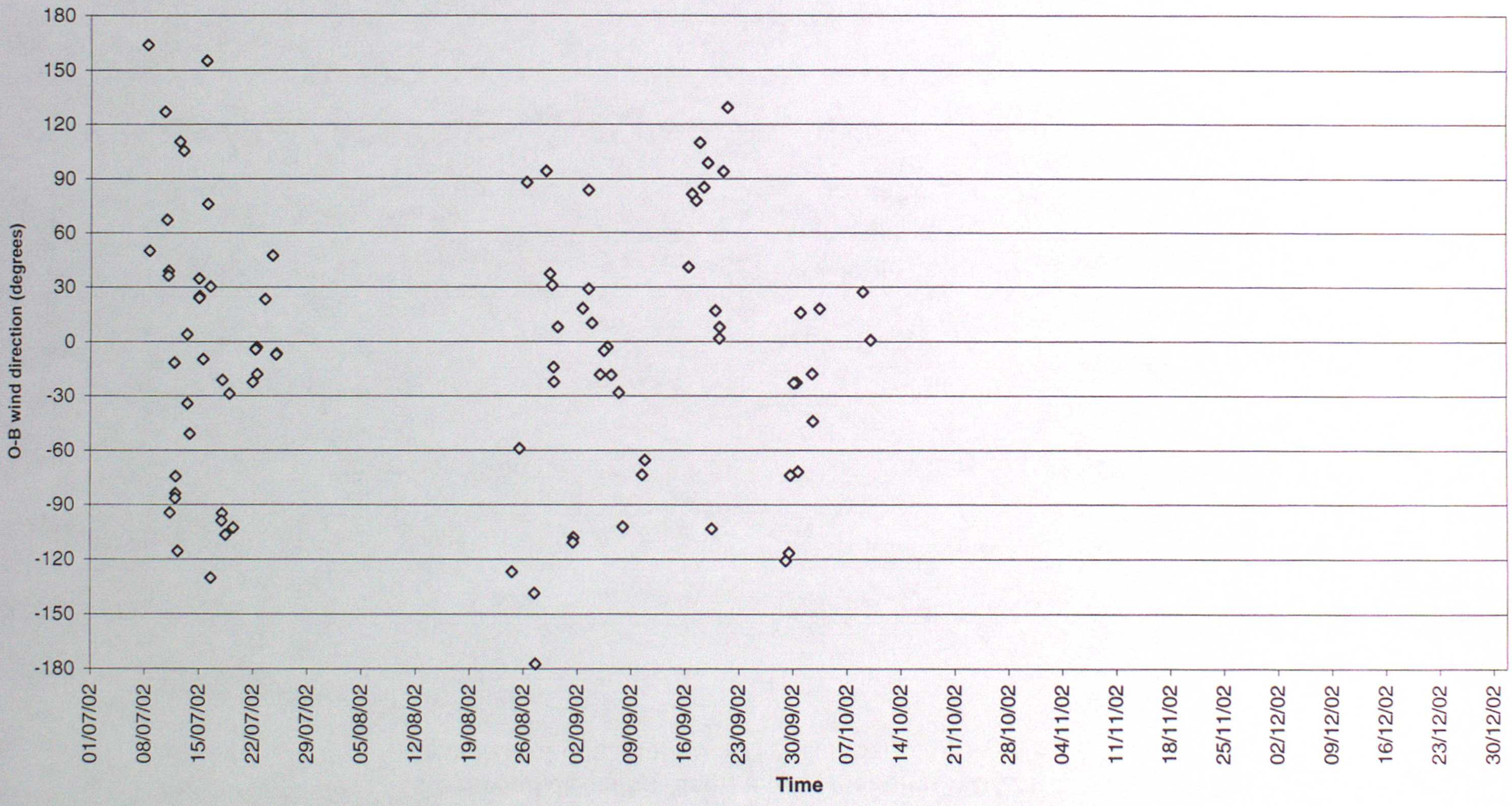

O-B wind direction (degrees) for identifier WCN4995
Number of obs. plotted = 111   Number of outliers = 0

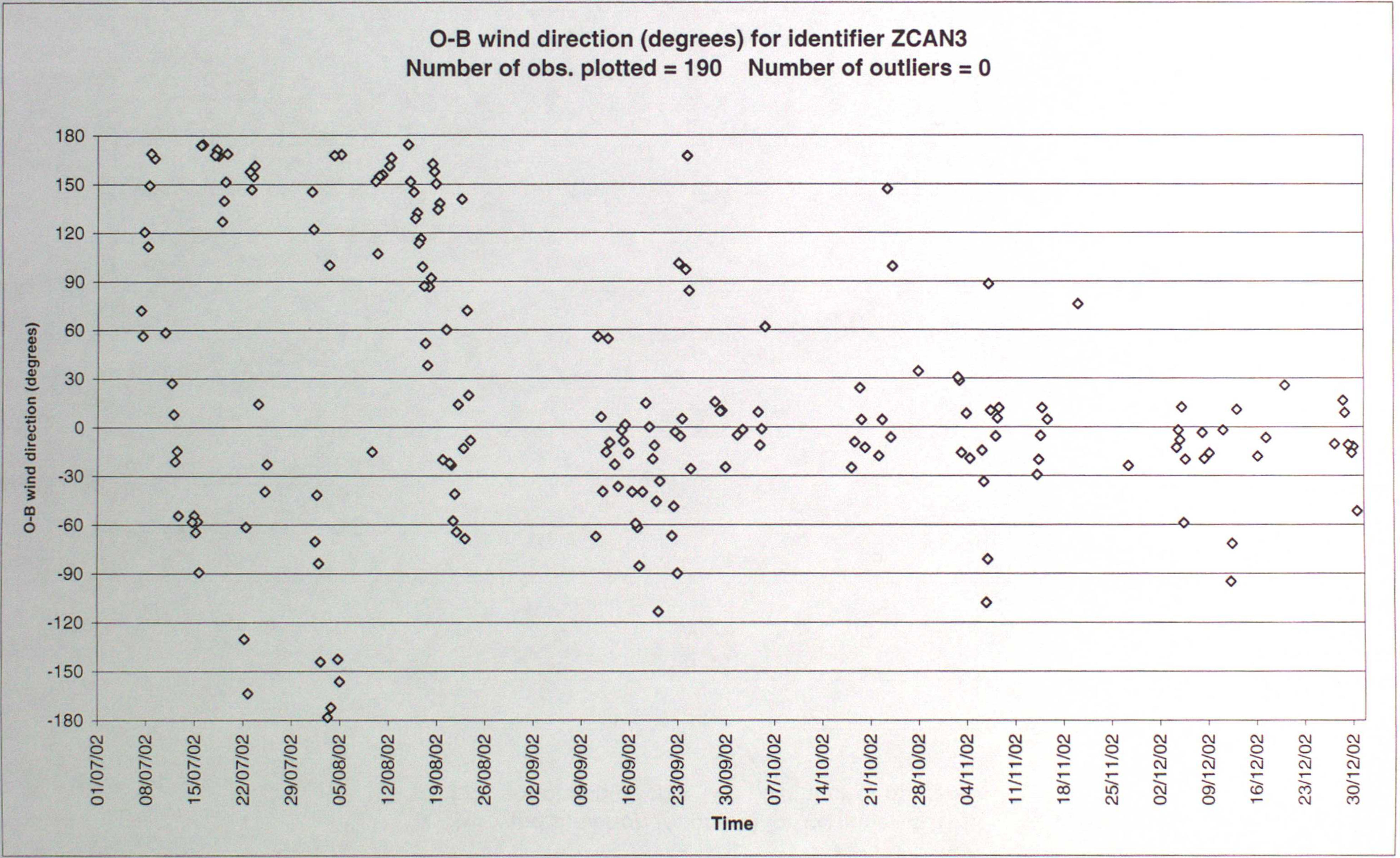

O-B wind direction (degrees) for identifier WCZ8589
Number of obs. plotted = 85   Number of outliers = 0

O-B wind direction (degrees) for identifier WDA2311
Number of obs. plotted = 91   Number of outliers = 0

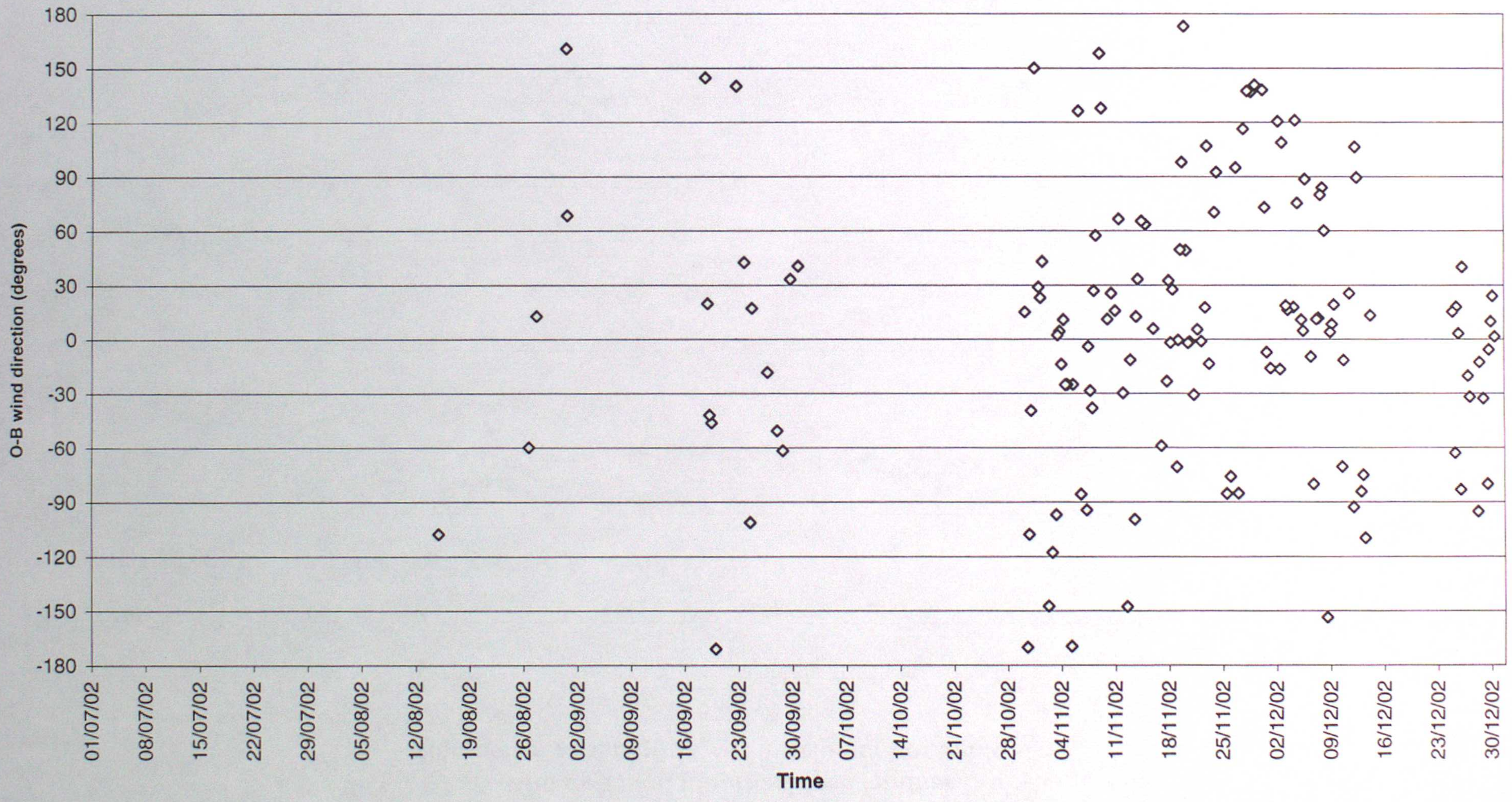


O-B wind direction (degrees) for identifier WYH6499
Number of obs. plotted = 88   Number of outliers = 0

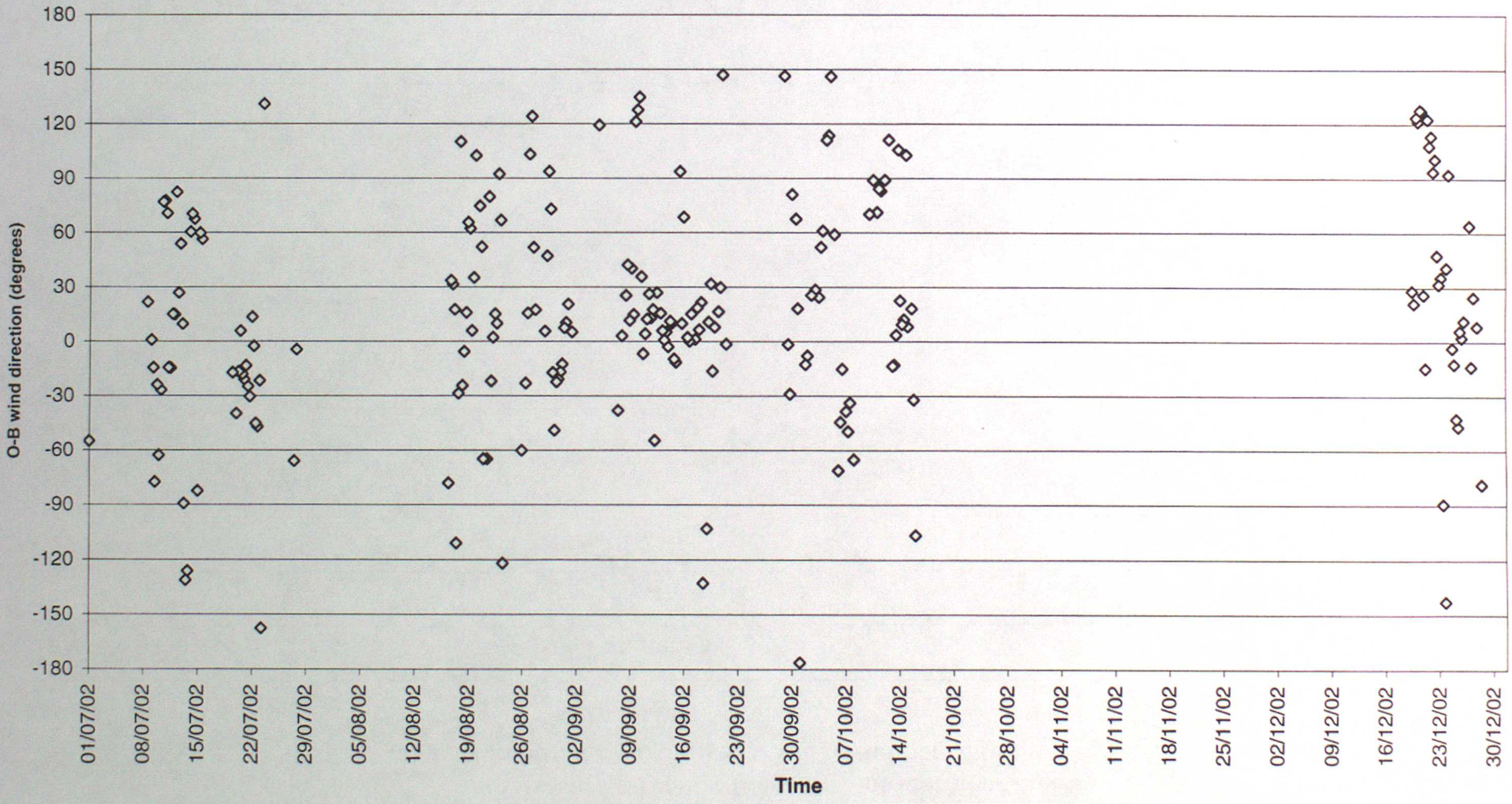



O-B wind direction (degrees) for identifier ZCAN3
Number of obs. plotted = 190   Number of outliers = 0

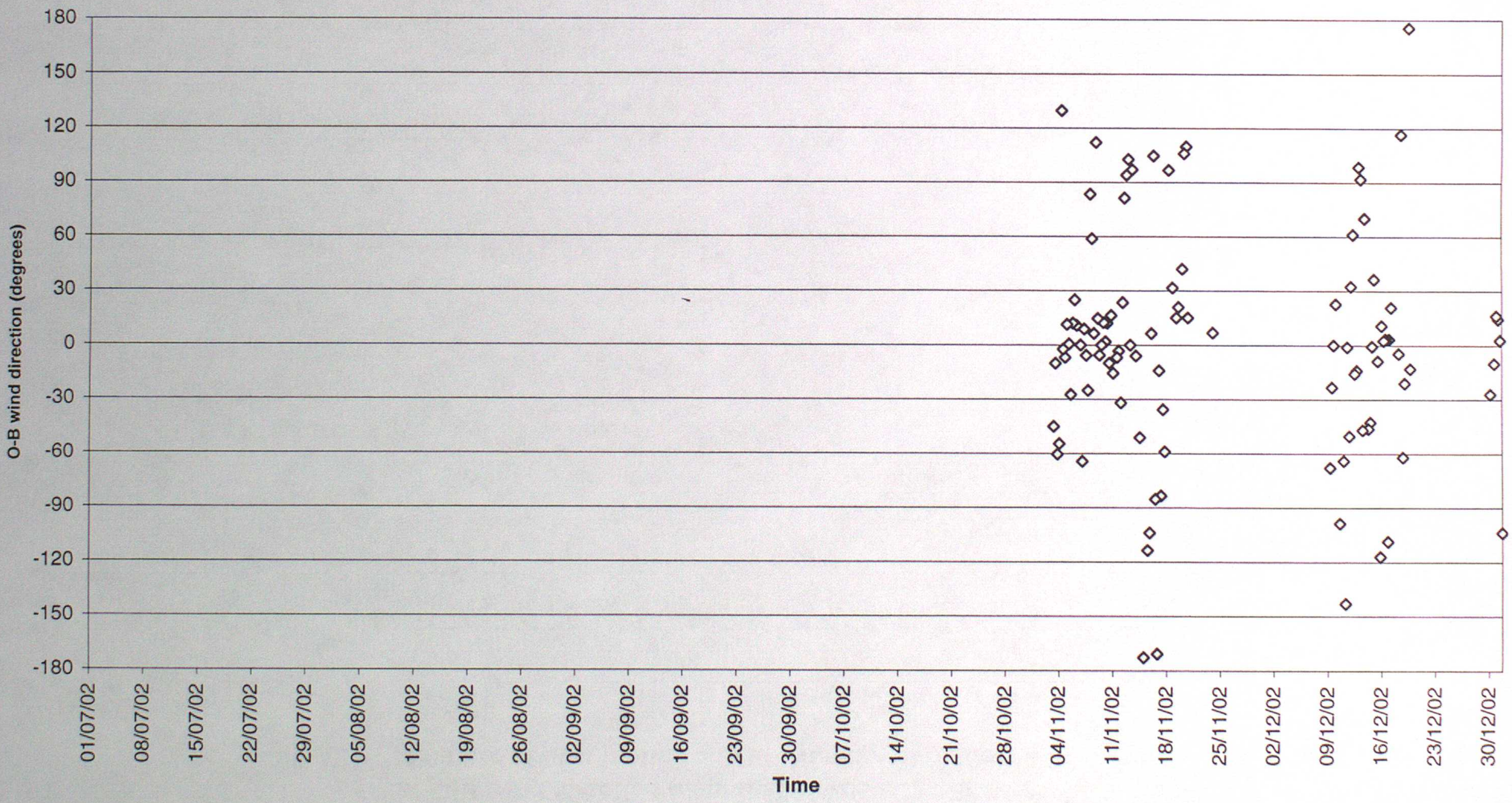
O-B wind direction (degrees) for identifier ZCBH3
Number of obs. plotted = 142   Number of outliers = 0



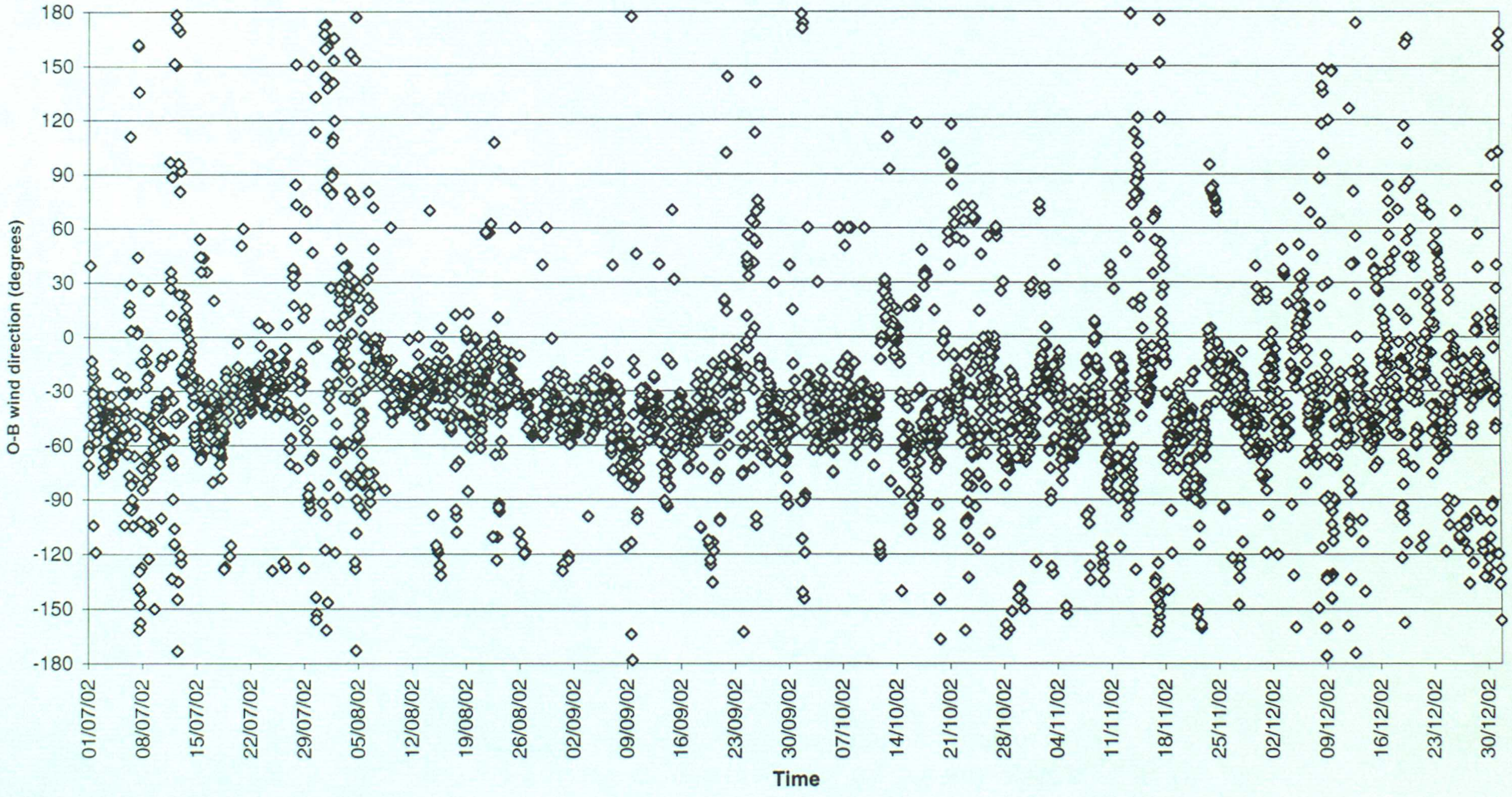
O-B wind direction (degrees) for identifier ZCGH3
Number of obs. plotted = 219   Number of outliers = 0



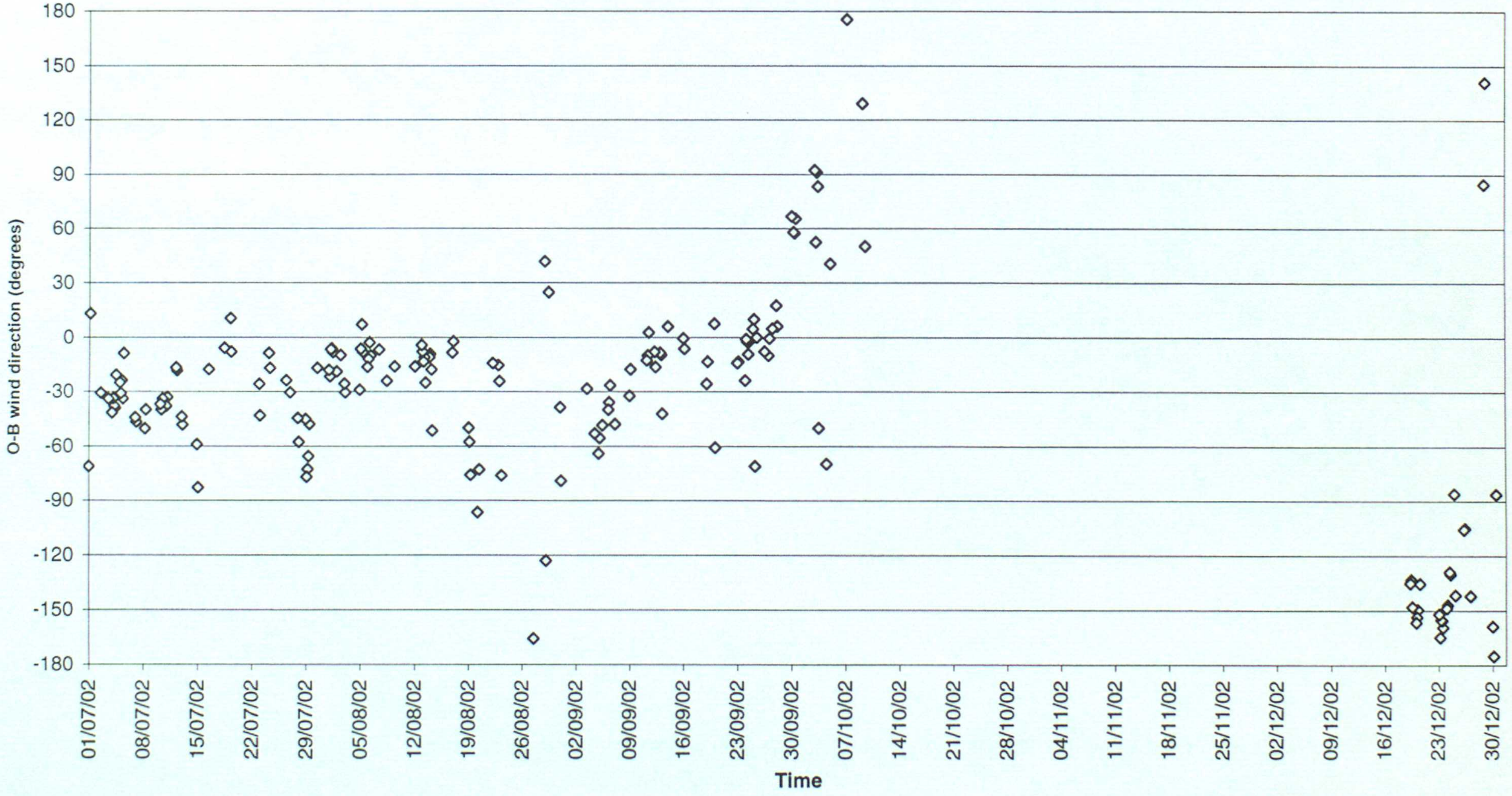
O-B wind direction (degrees) for identifier ZIZP9
Number of obs. plotted = 103   Number of outliers = 0

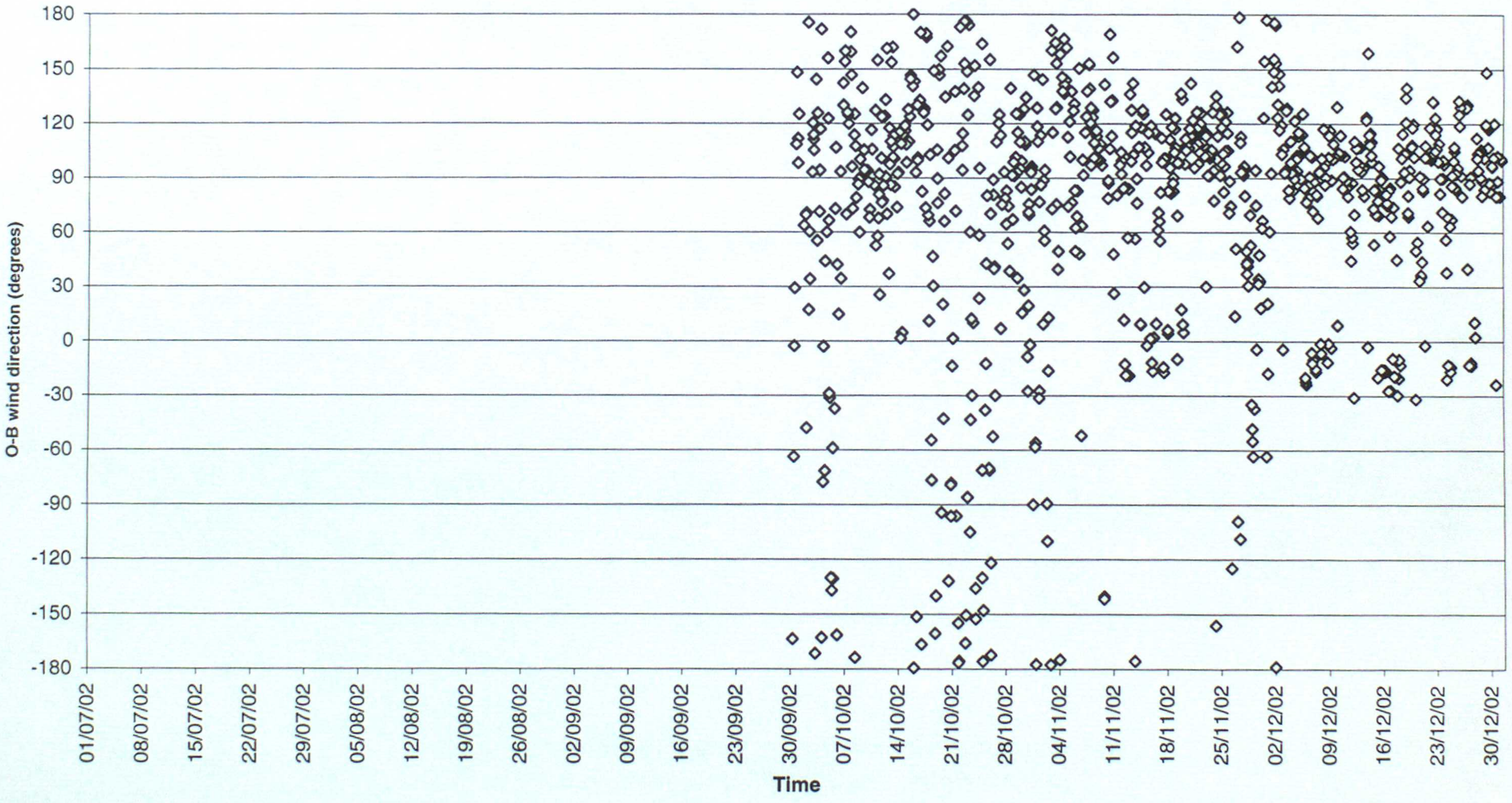


O-B wind direction (degrees) for identifier 21535
Number of obs. plotted = 3261   Number of outliers = 0

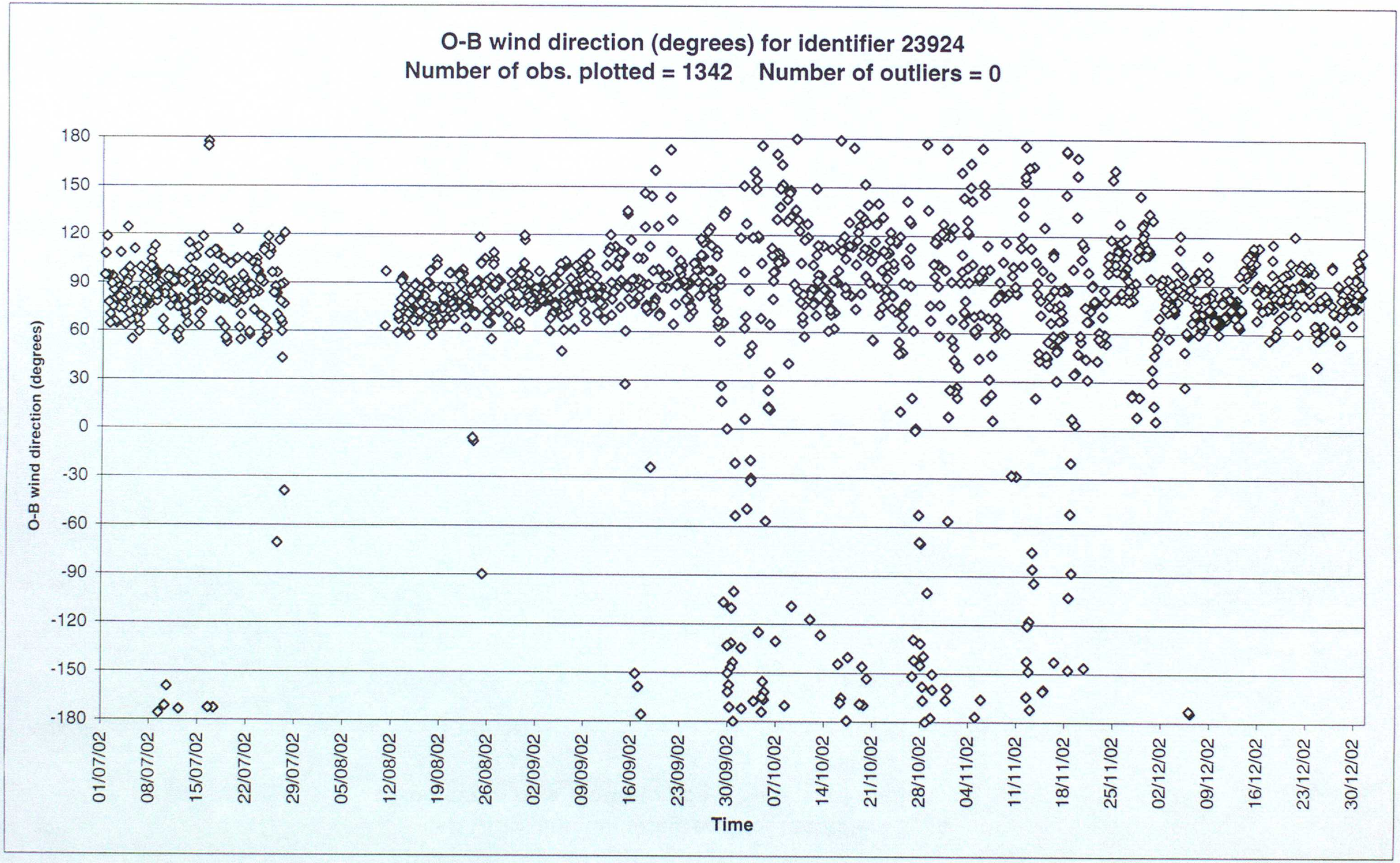


O-B wind direction (degrees) for identifier 23102
Number of obs. plotted = 177   Number of outliers = 0



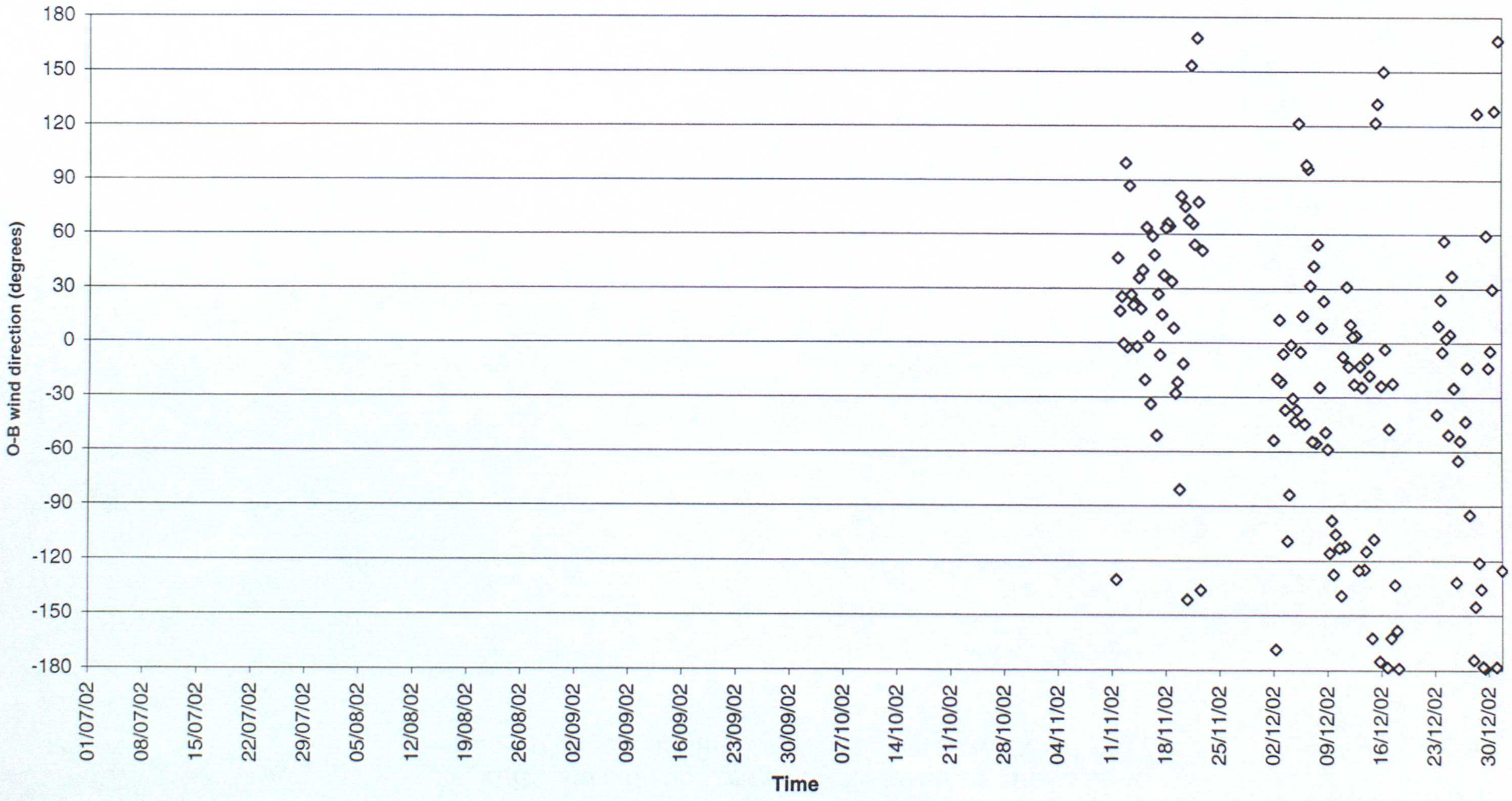


O-B wind direction (degrees) for identifier 23594
Number of obs. plotted = 854   Number of outliers = 0

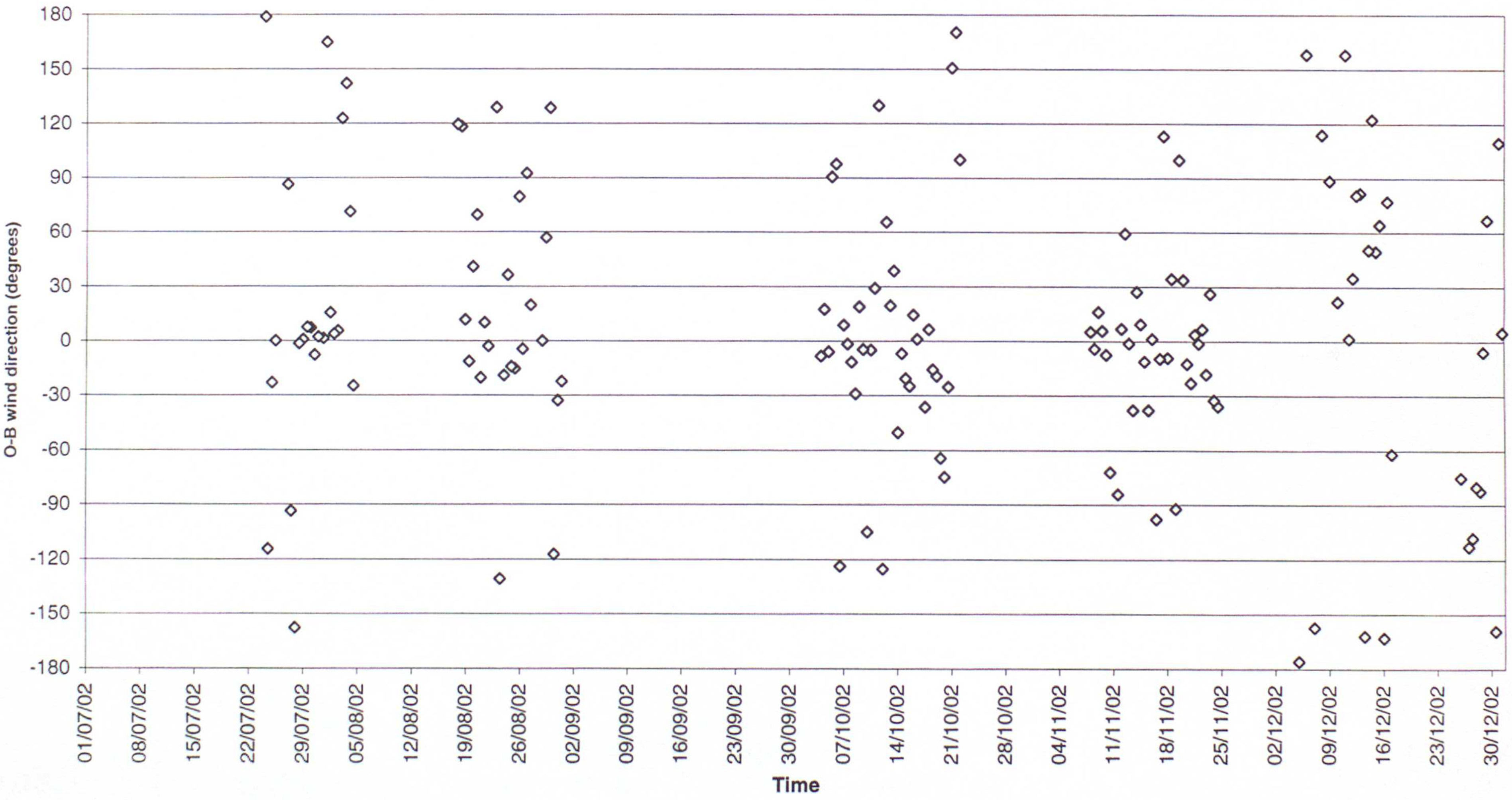


O-B wind direction (degrees) for identifier 23924
Number of obs. plotted = 1342   Number of outliers = 0

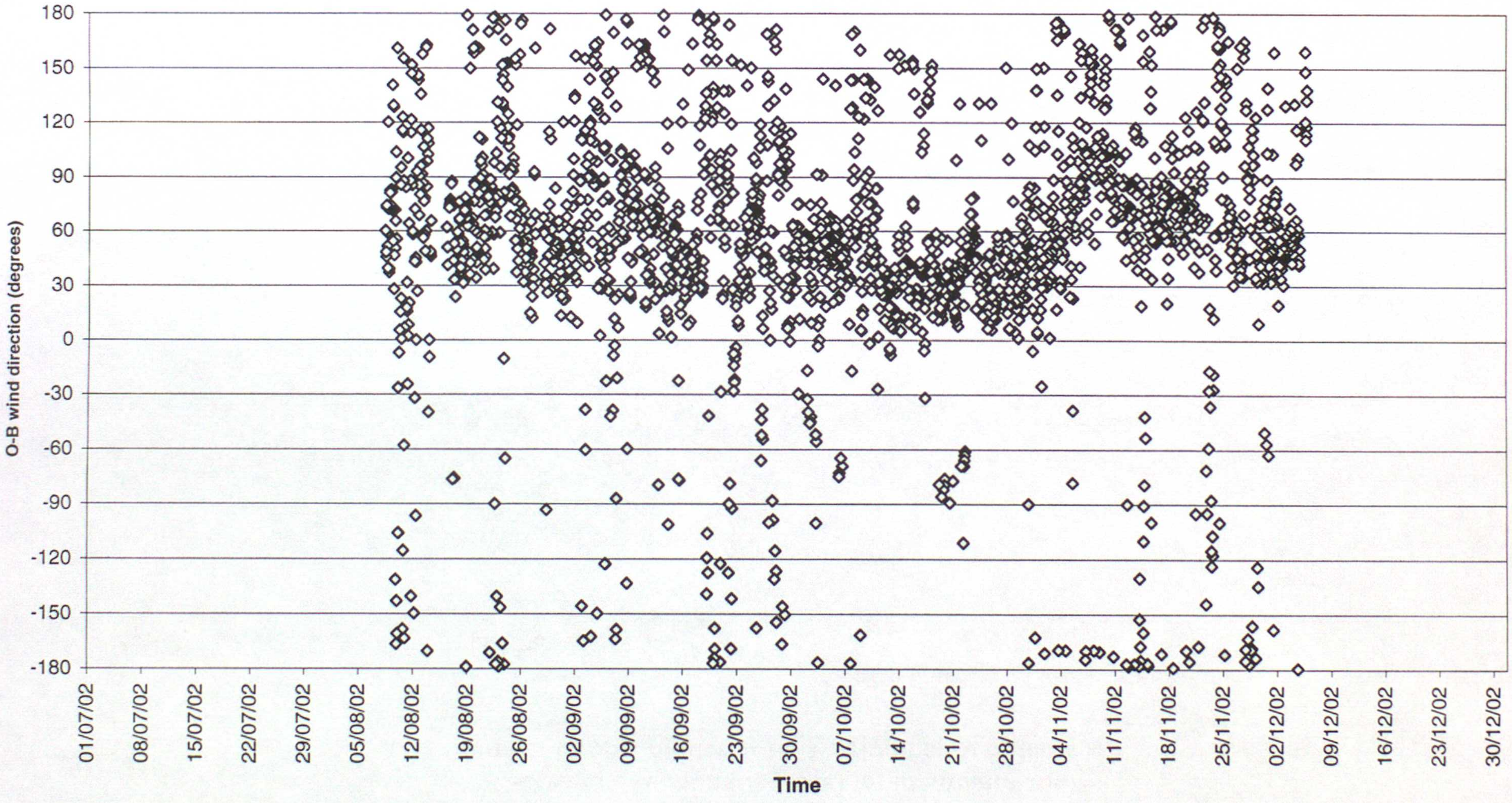
O-B wind direction (degrees) for identifier 3ETX6
Number of obs. plotted = 142   Number of outliers = 0

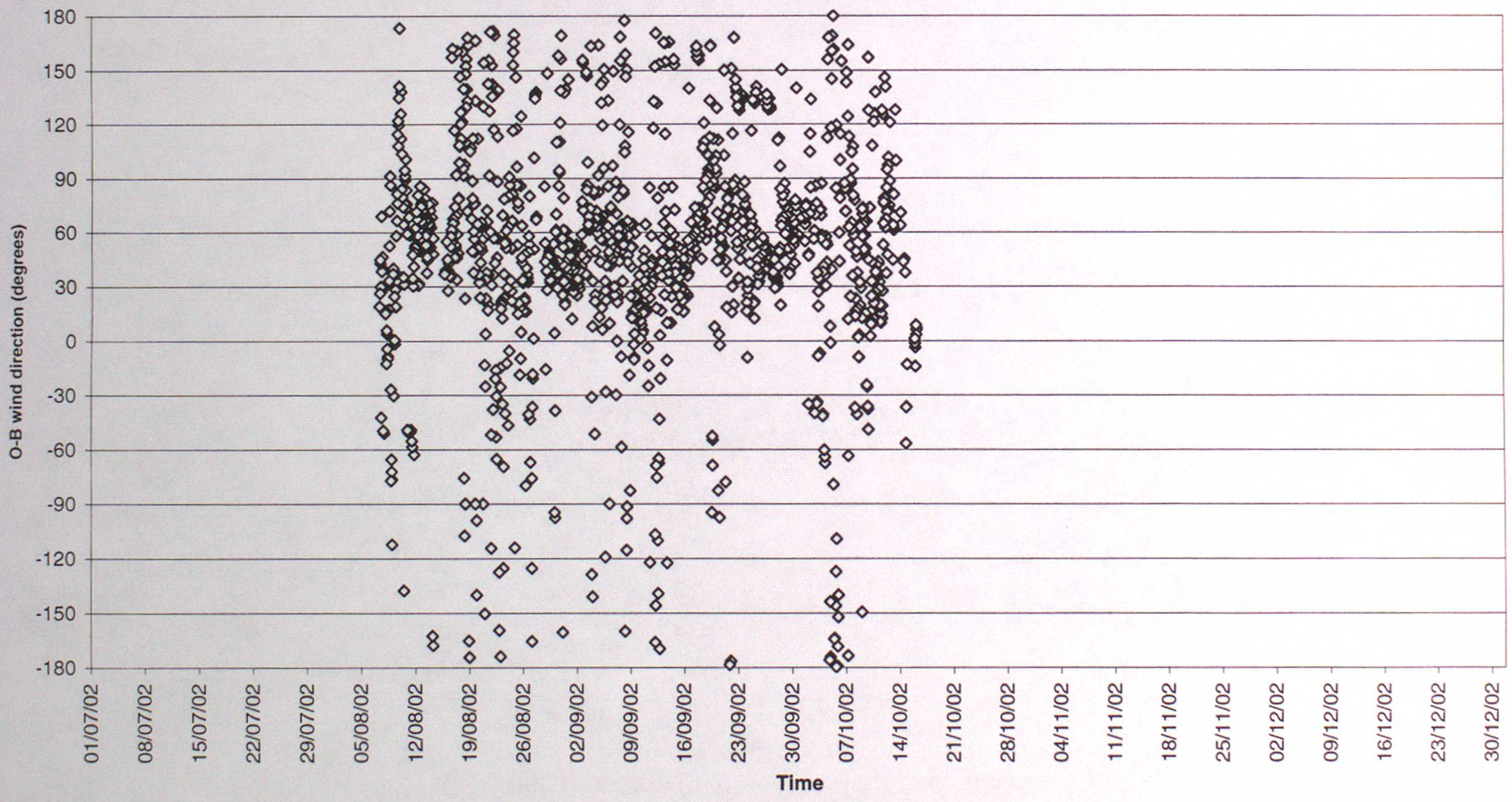


O-B wind direction (degrees) for identifier 3FDV6
Number of obs. plotted = 145   Number of outliers = 0



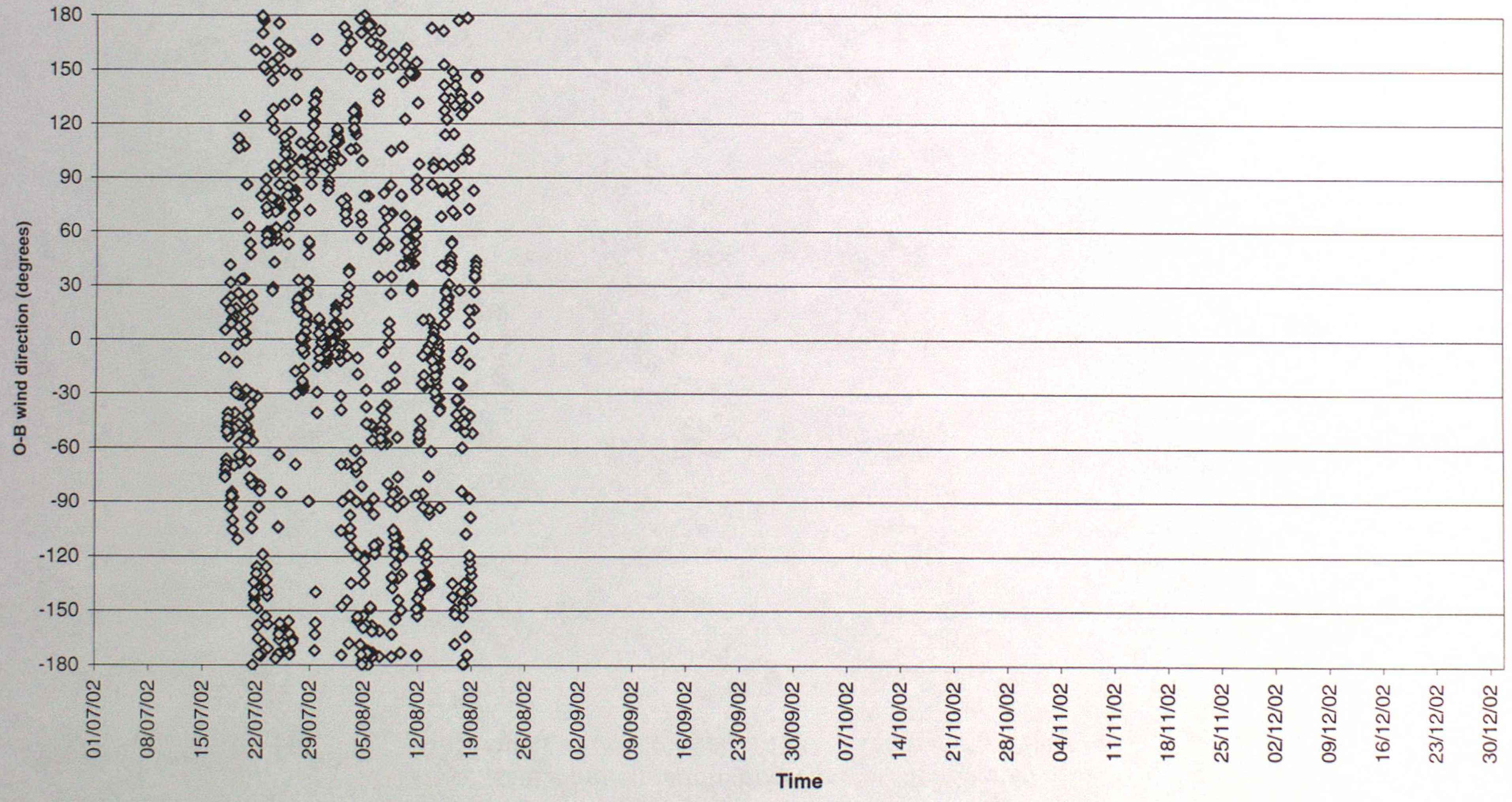
O-B wind direction (degrees) for identifier 41536
Number of obs. plotted = 2242   Number of outliers = 0

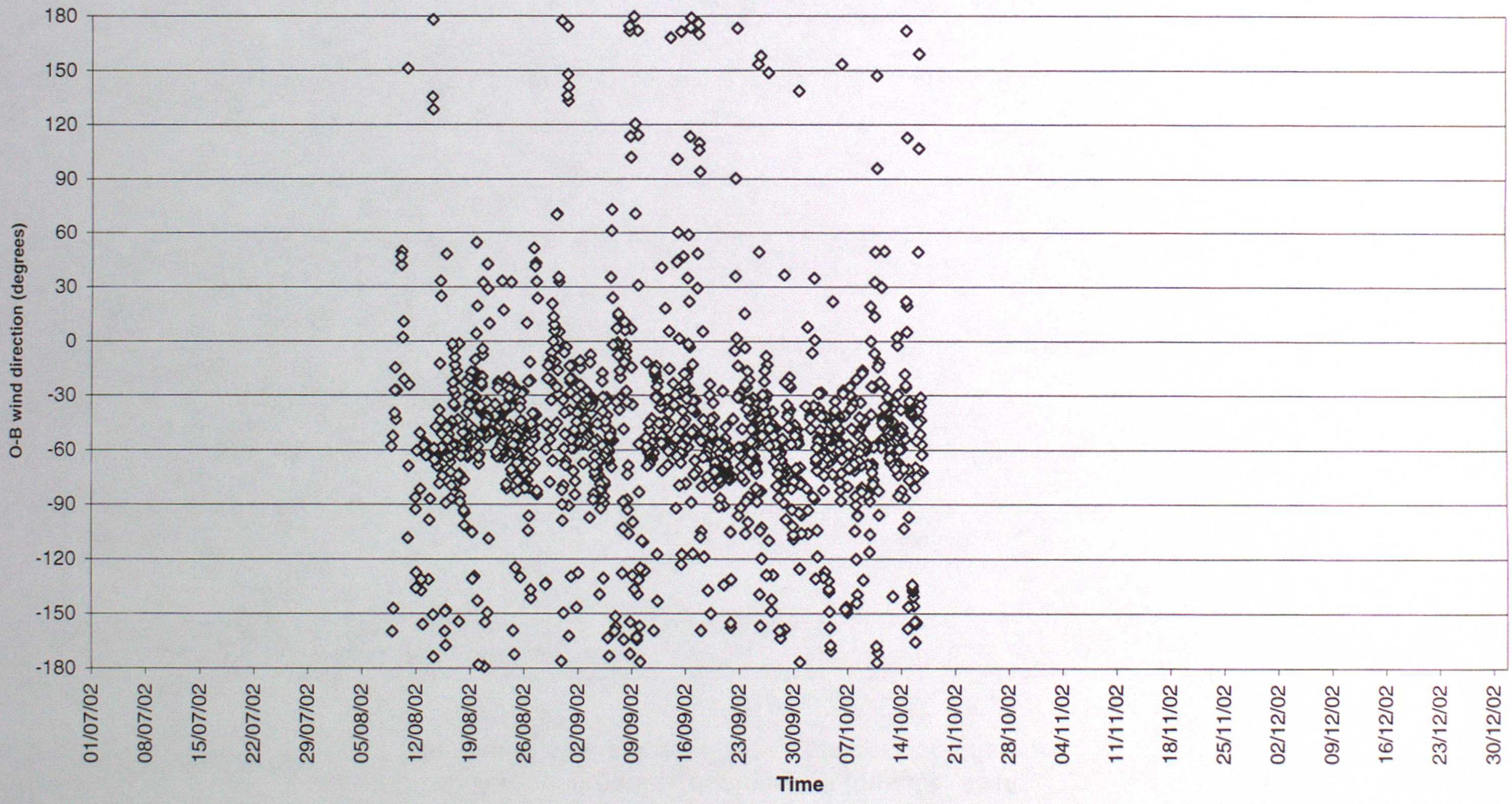




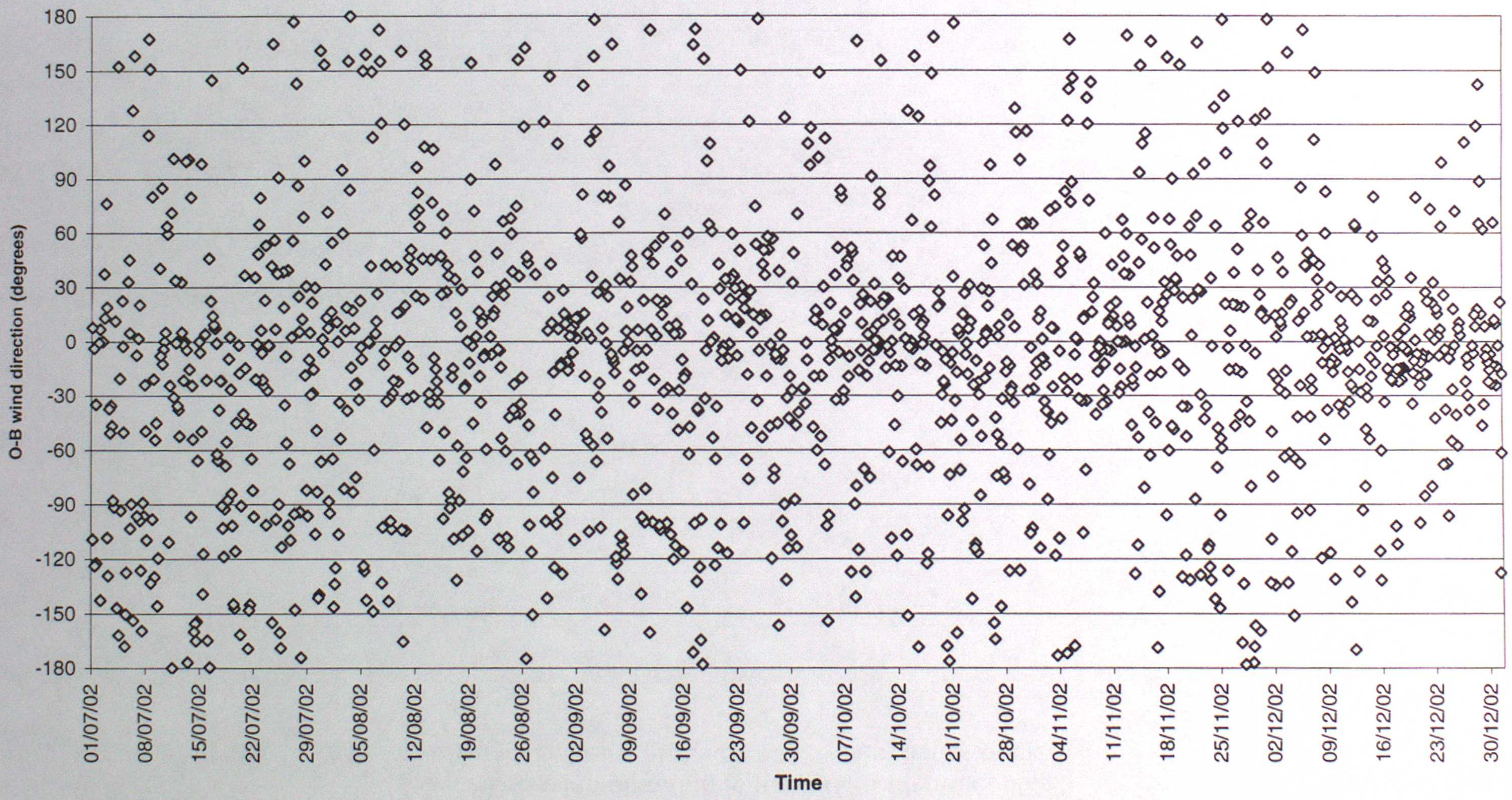
O-B wind direction (degrees) for identifier 41667

Number of obs. plotted = 1301   Number of outliers = 0

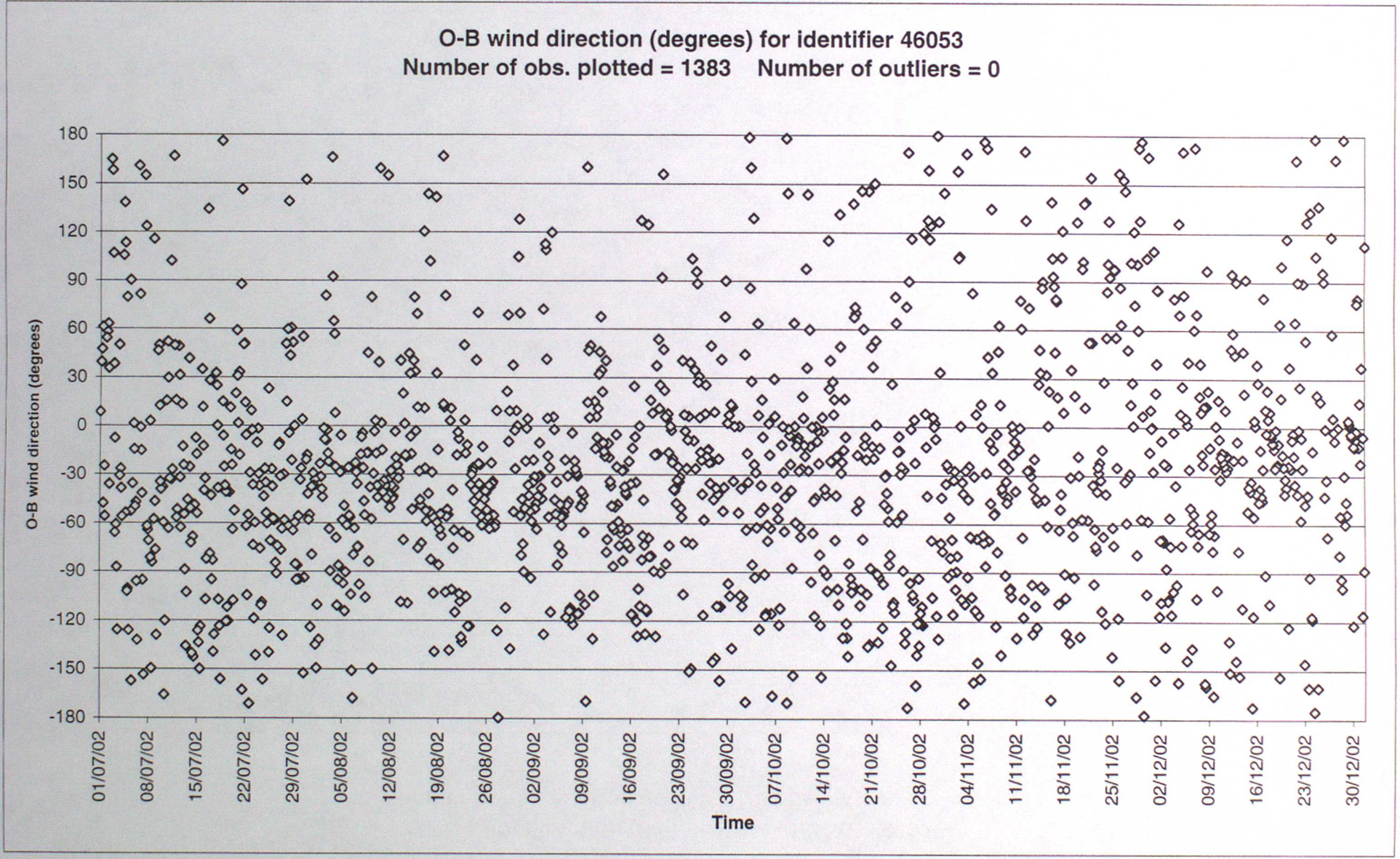

O-B wind direction (degrees) for identifier 45141
Number of obs. plotted = 781   Number of outliers = 0



O-B wind direction (degrees) for identifier 45151
Number of obs. plotted = 1194   Number of outliers = 0



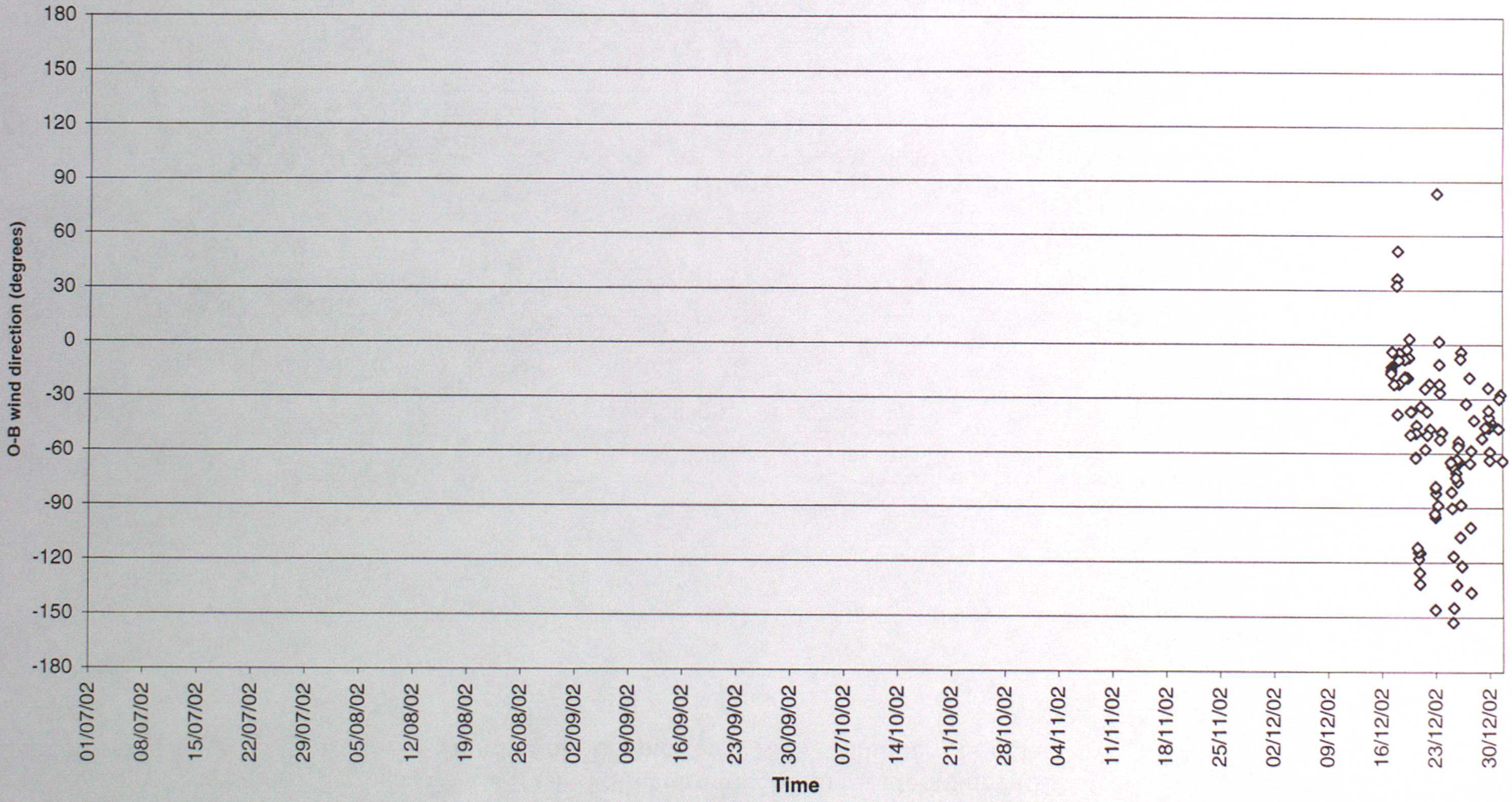
O-B wind direction (degrees) for identifier 46025
Number of obs. plotted = 1389 Number of outliers = 0



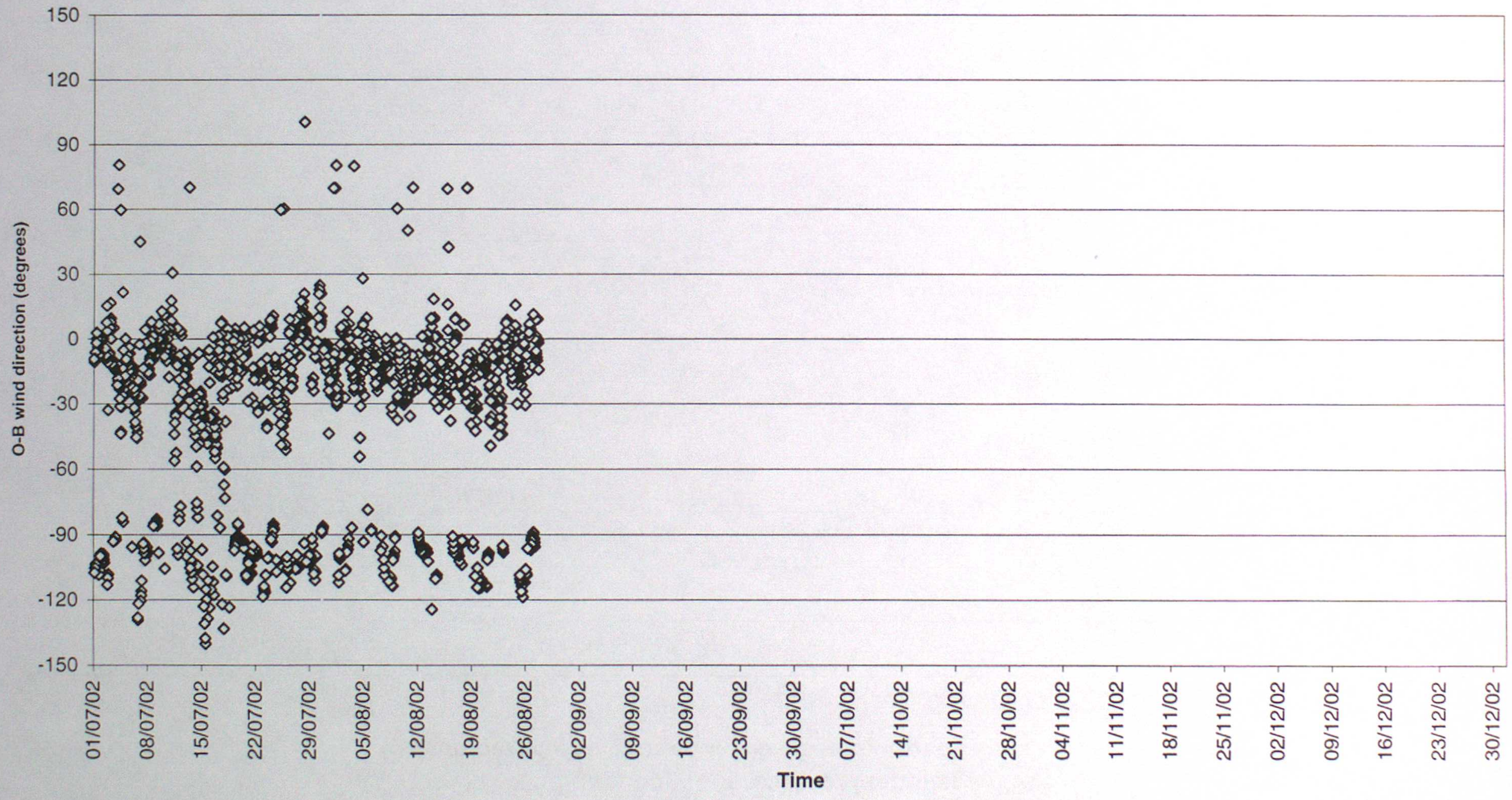
O-B wind direction (degrees) for identifier 46053

Number of obs. plotted = 1383   Number of outliers = 0

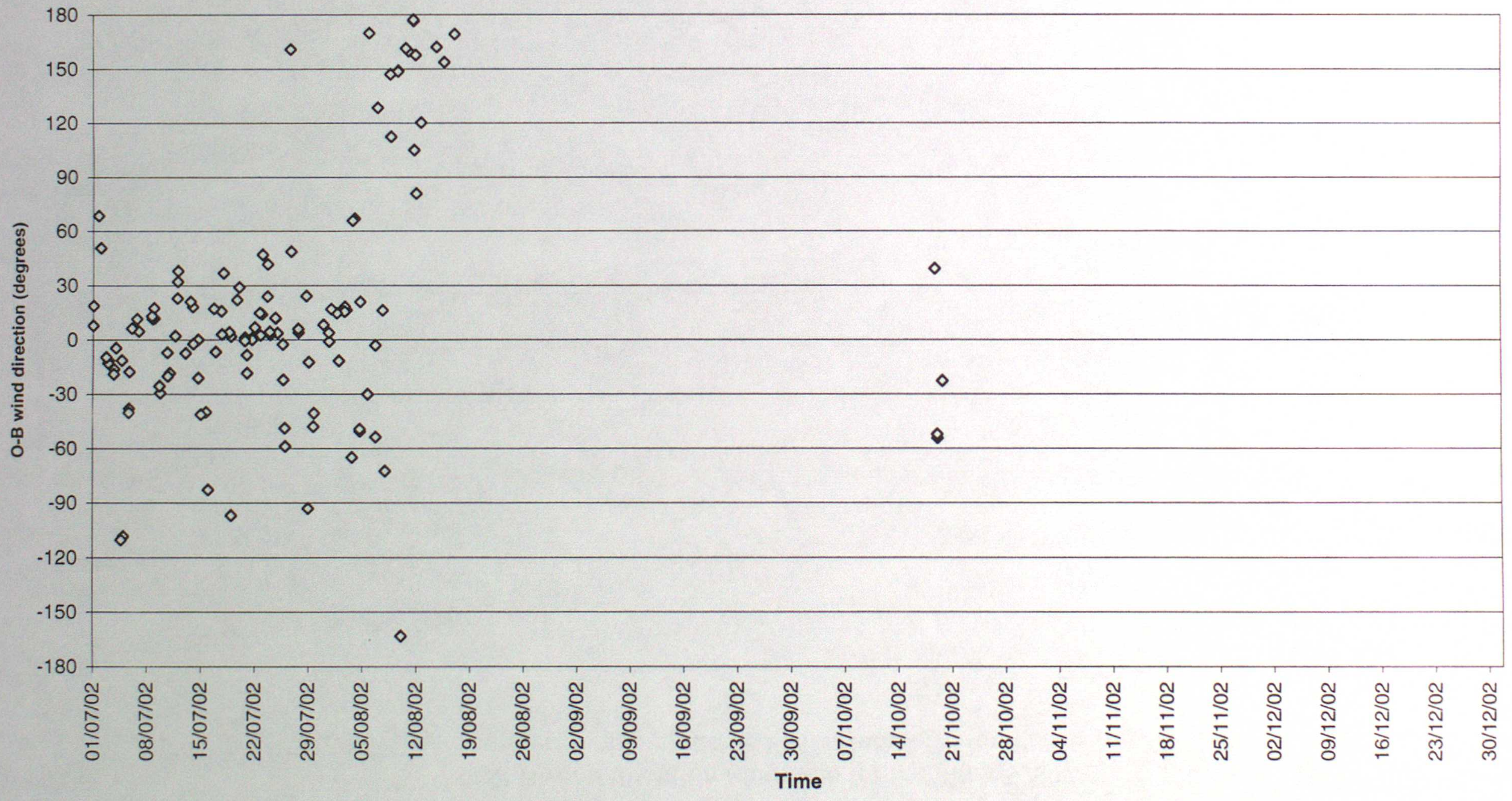
O-B wind direction (degrees) for identifier 46701
Number of obs. plotted = 100   Number of outliers = 0



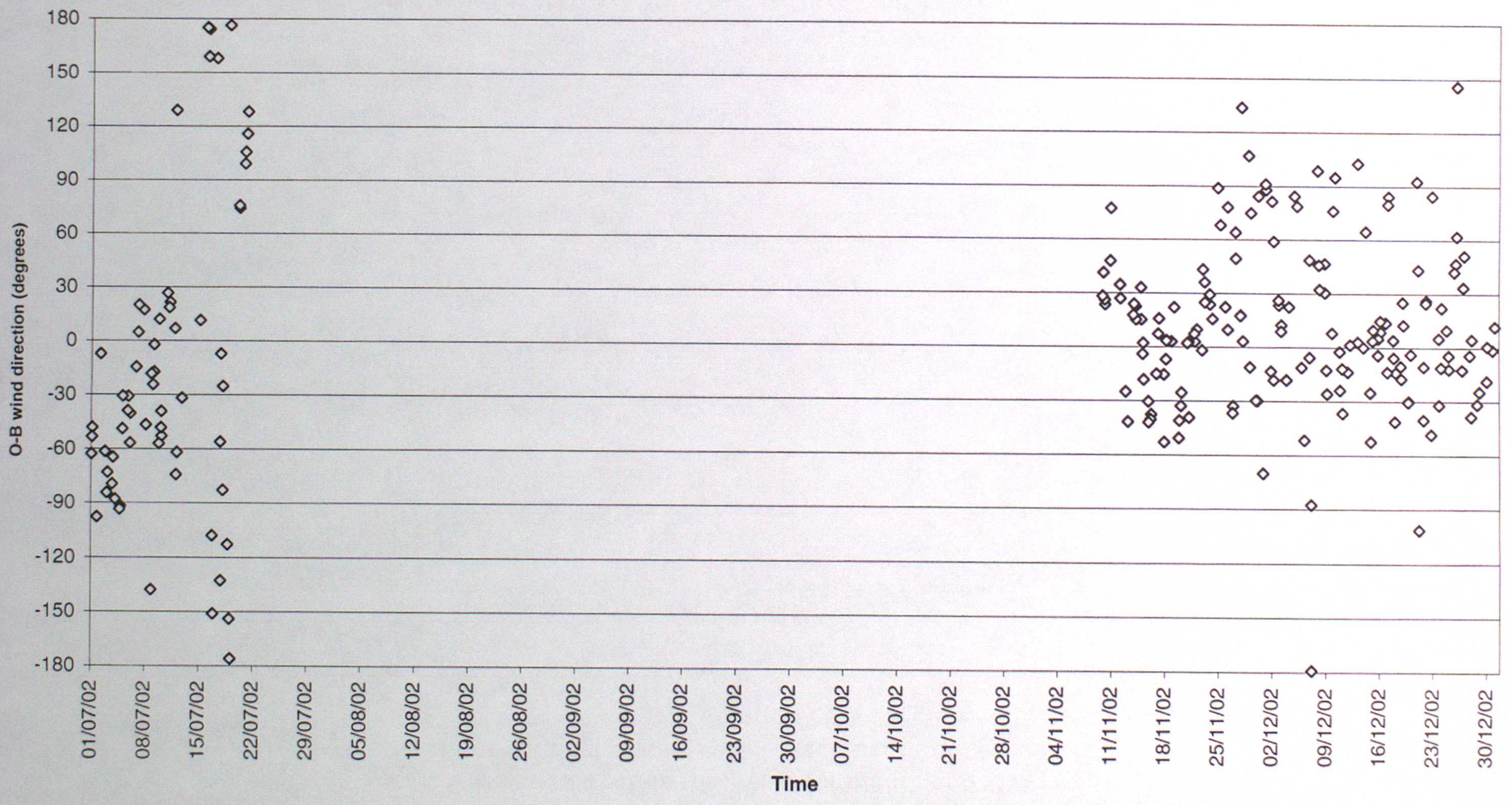
O-B wind direction (degrees) for identifier 51028
Number of obs. plotted = 1378   Number of outliers = 0



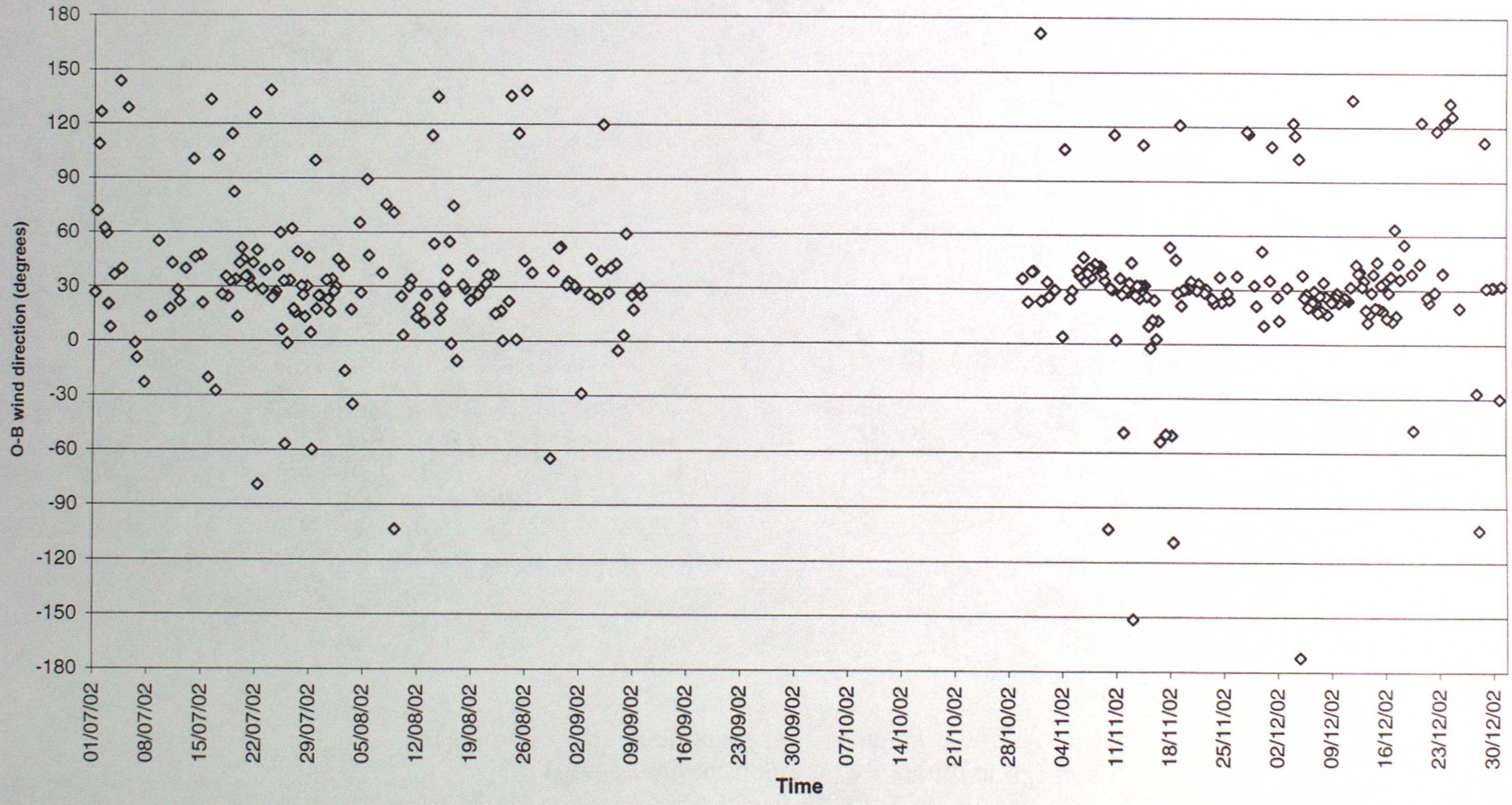
O-B wind direction (degrees) for identifier 51306
Number of obs. plotted = 125   Number of outliers = 0



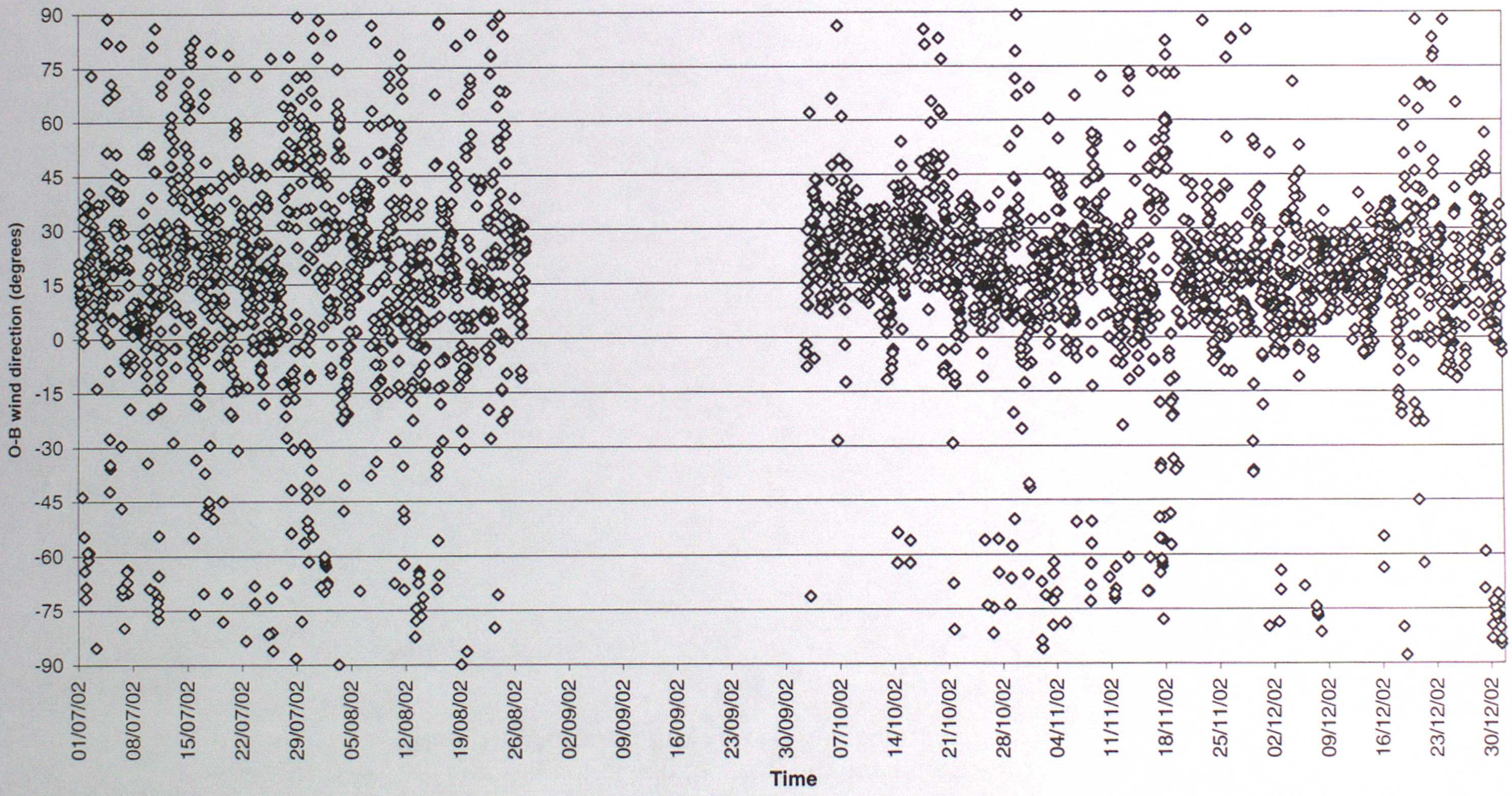
O-B wind direction (degrees) for identifier 52007
Number of obs. plotted = 230   Number of outliers = 0

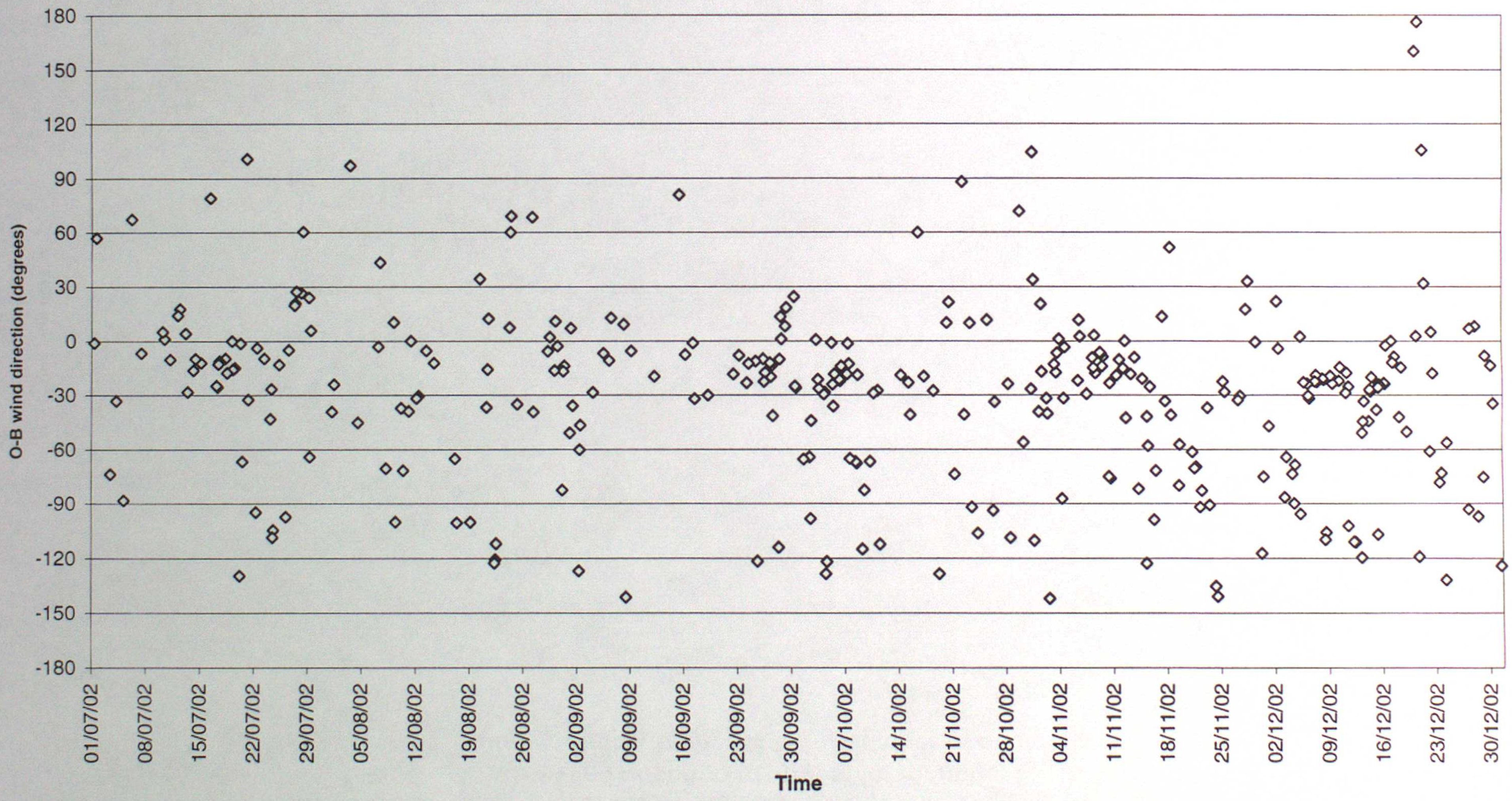


O-B wind direction (degrees) for identifier 62131
Number of obs. plotted = 321   Number of outliers = 0



O-B wind direction (degrees) for identifier 62144
Number of obs. plotted = 3185   Number of outliers = 308

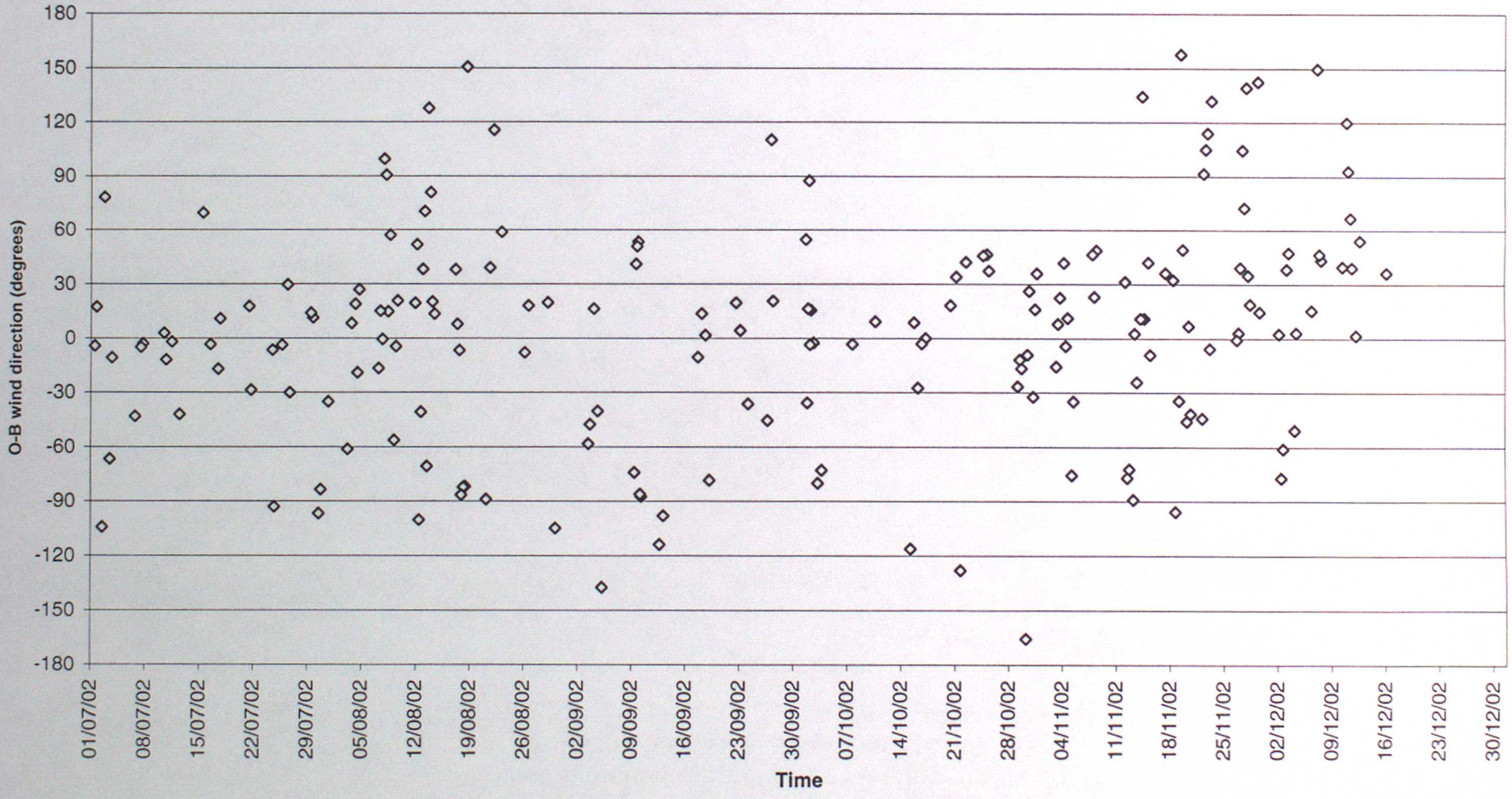




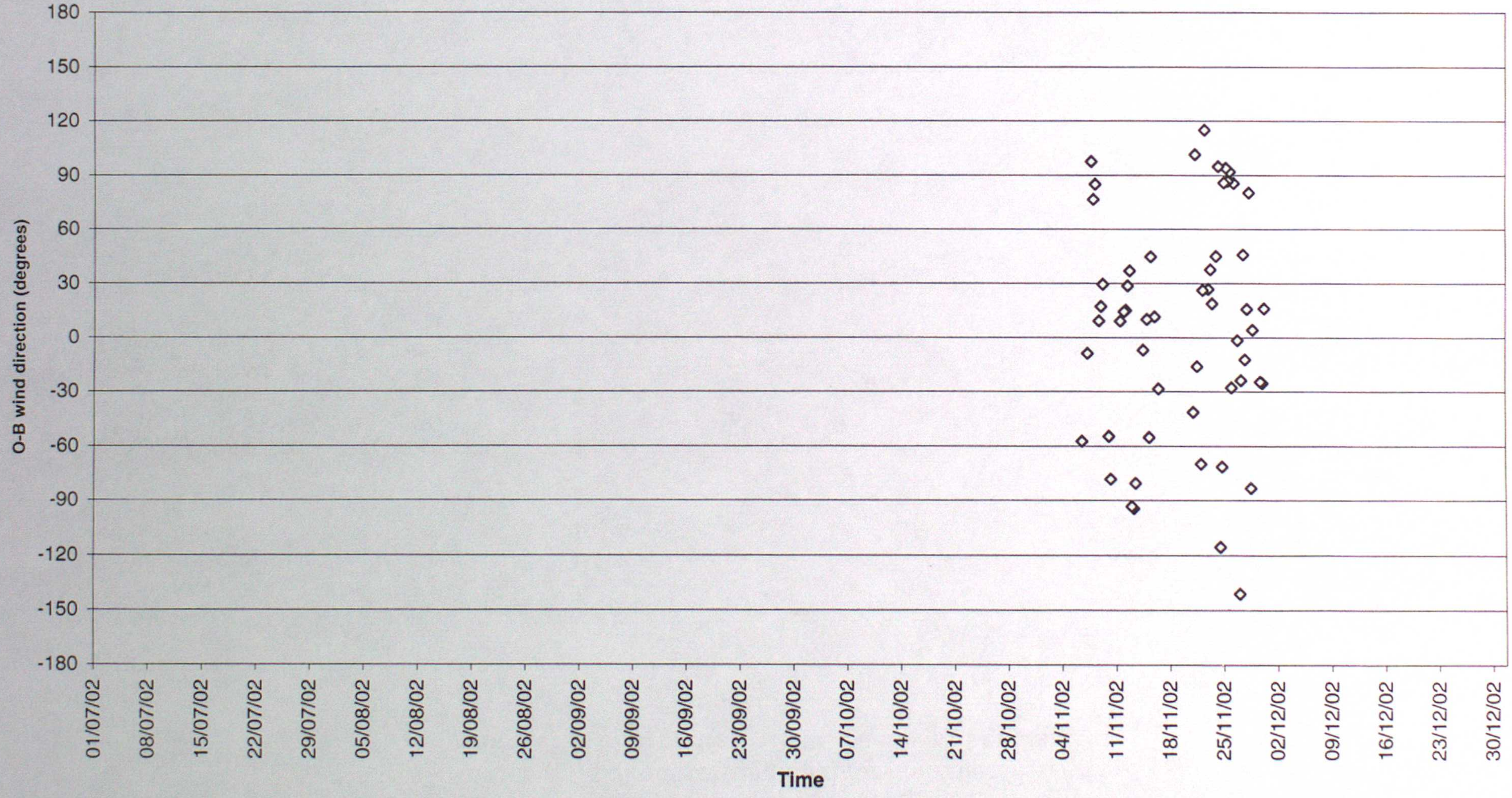
O-B wind direction (degrees) for identifier 62414
Number of obs. plotted = 330   Number of outliers = 0

O-B wind direction (degrees) for identifier 8PNI

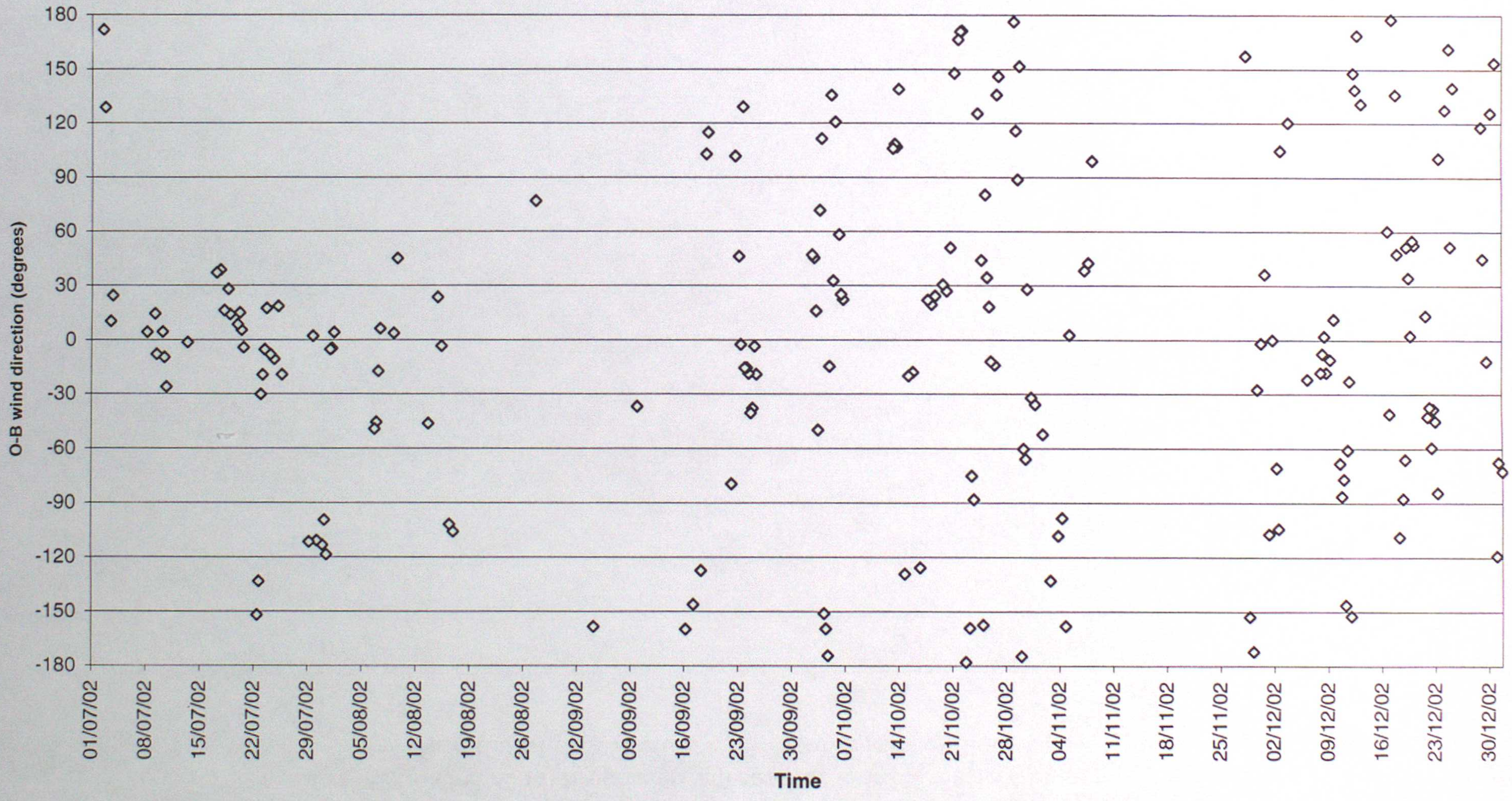
Number of obs. plotted = 191   Number of outliers = 0



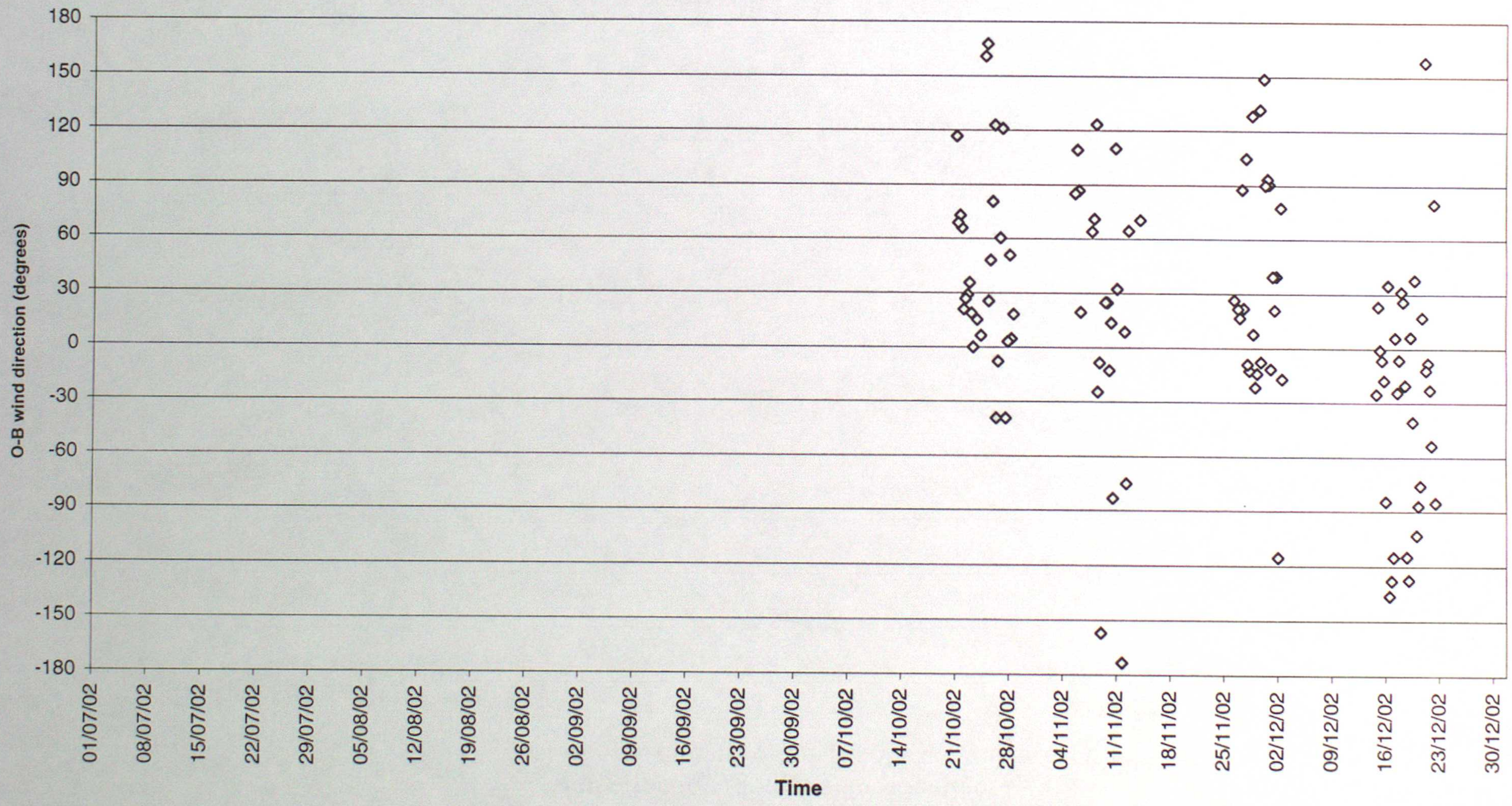
O-B wind direction (degrees) for identifier 9HHW6
Number of obs. plotted = 55   Number of outliers = 0

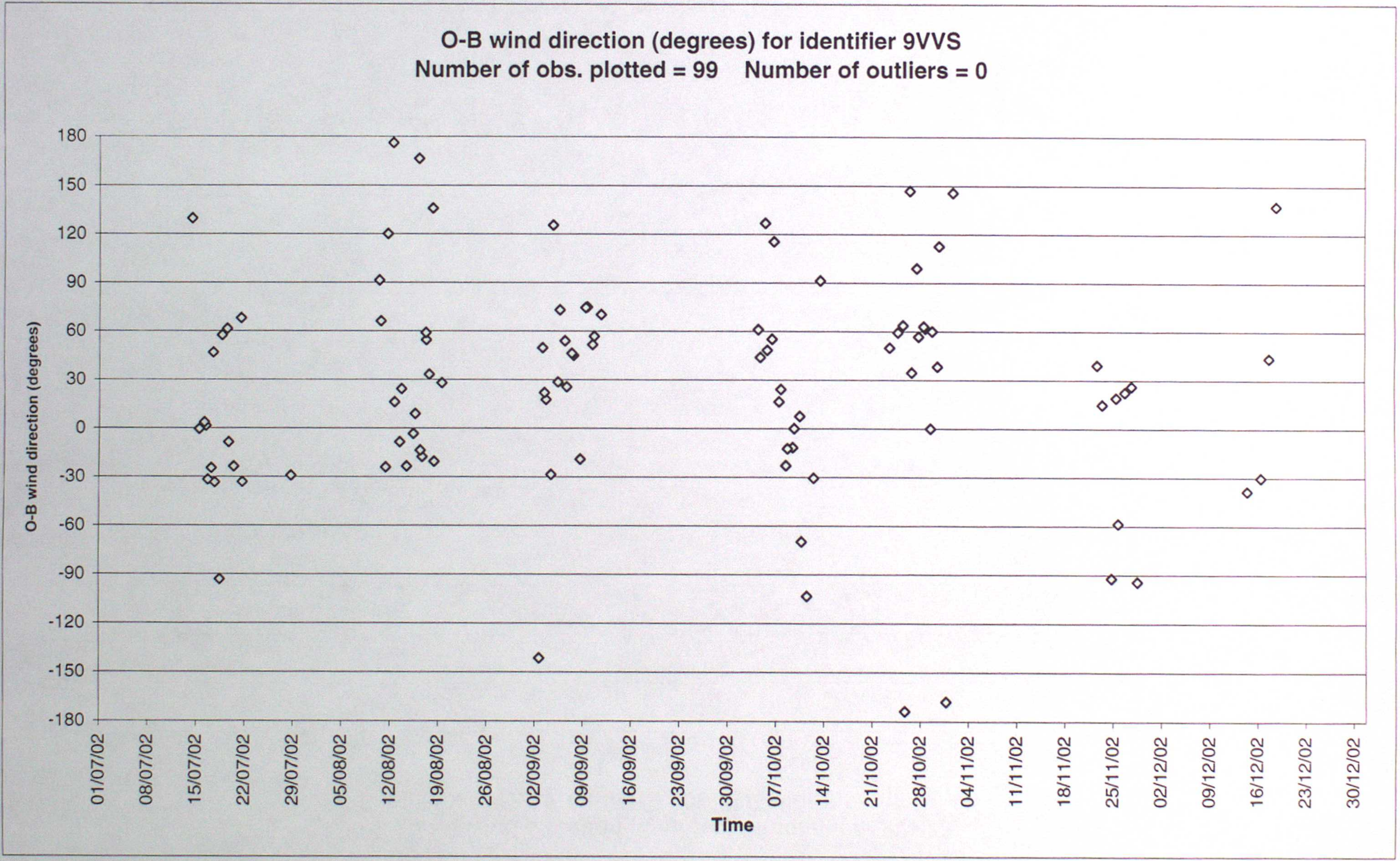


O-B wind direction (degrees) for identifier 9HWA5
Number of obs. plotted = 200   Number of outliers = 0



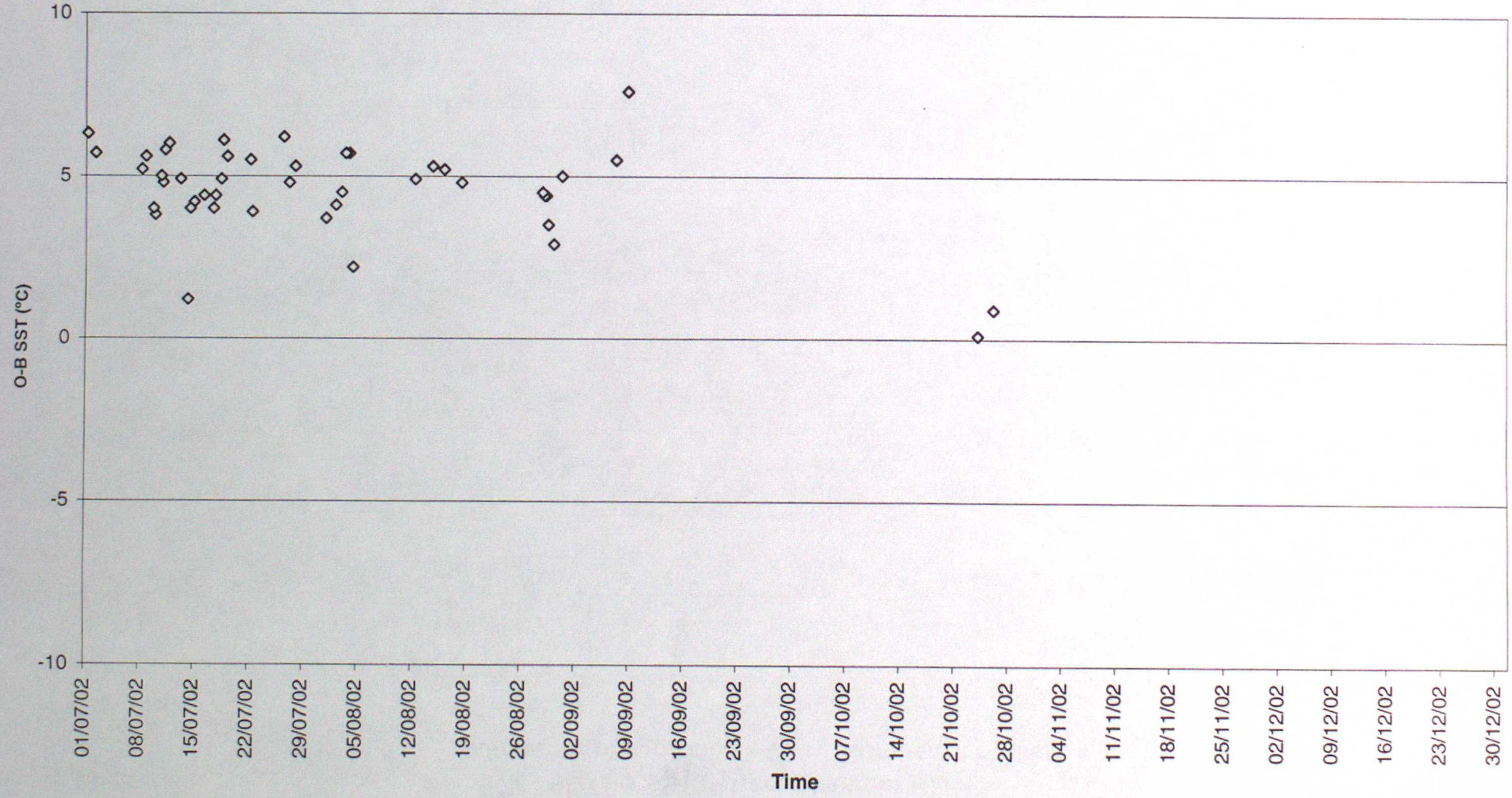
O-B wind direction (degrees) for identifier 9VHZ3
Number of obs. plotted = 106   Number of outliers = 0



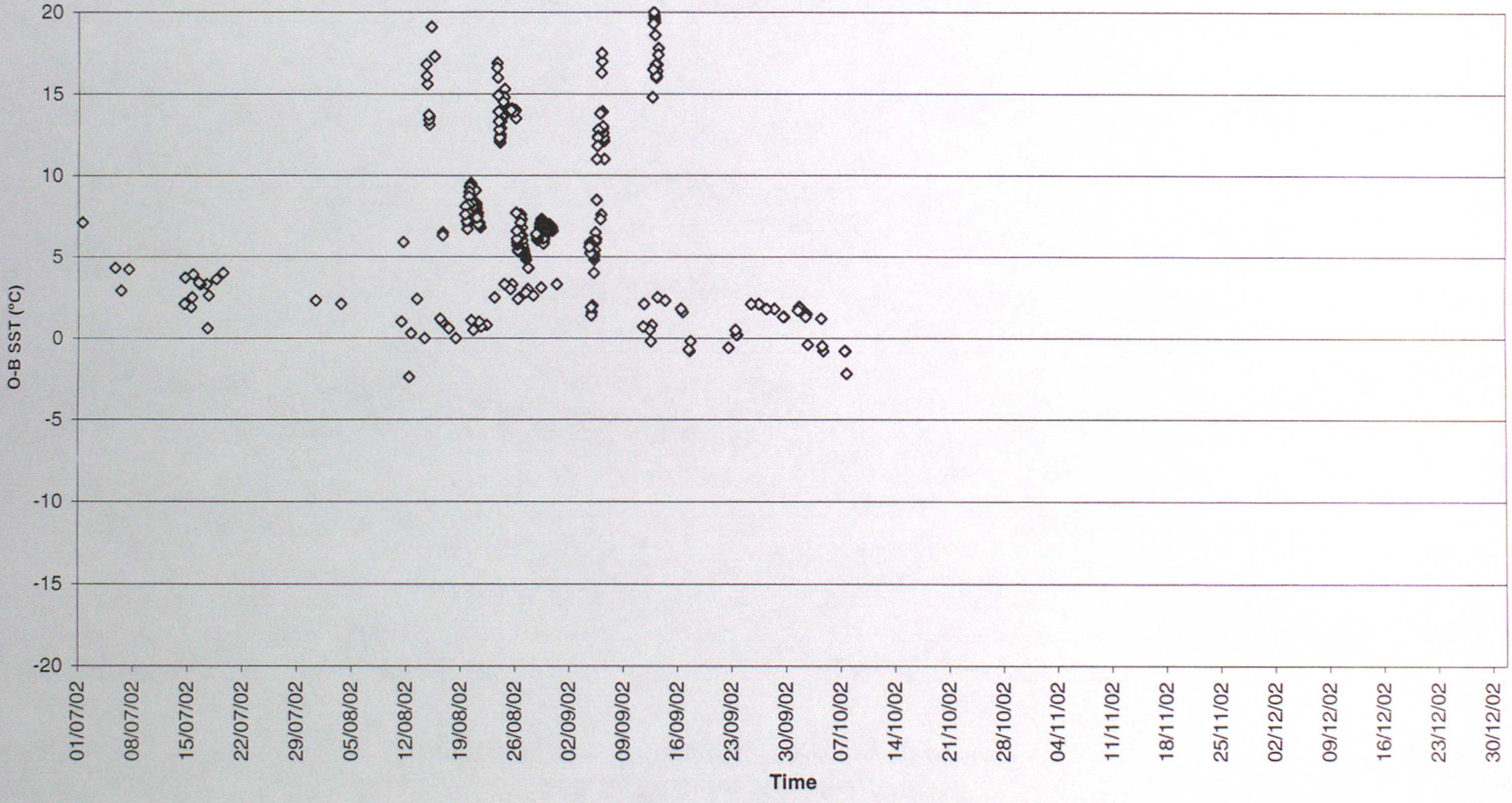


O-B wind direction (degrees) for identifier 9VVS
Number of obs. plotted = 99   Number of outliers = 0

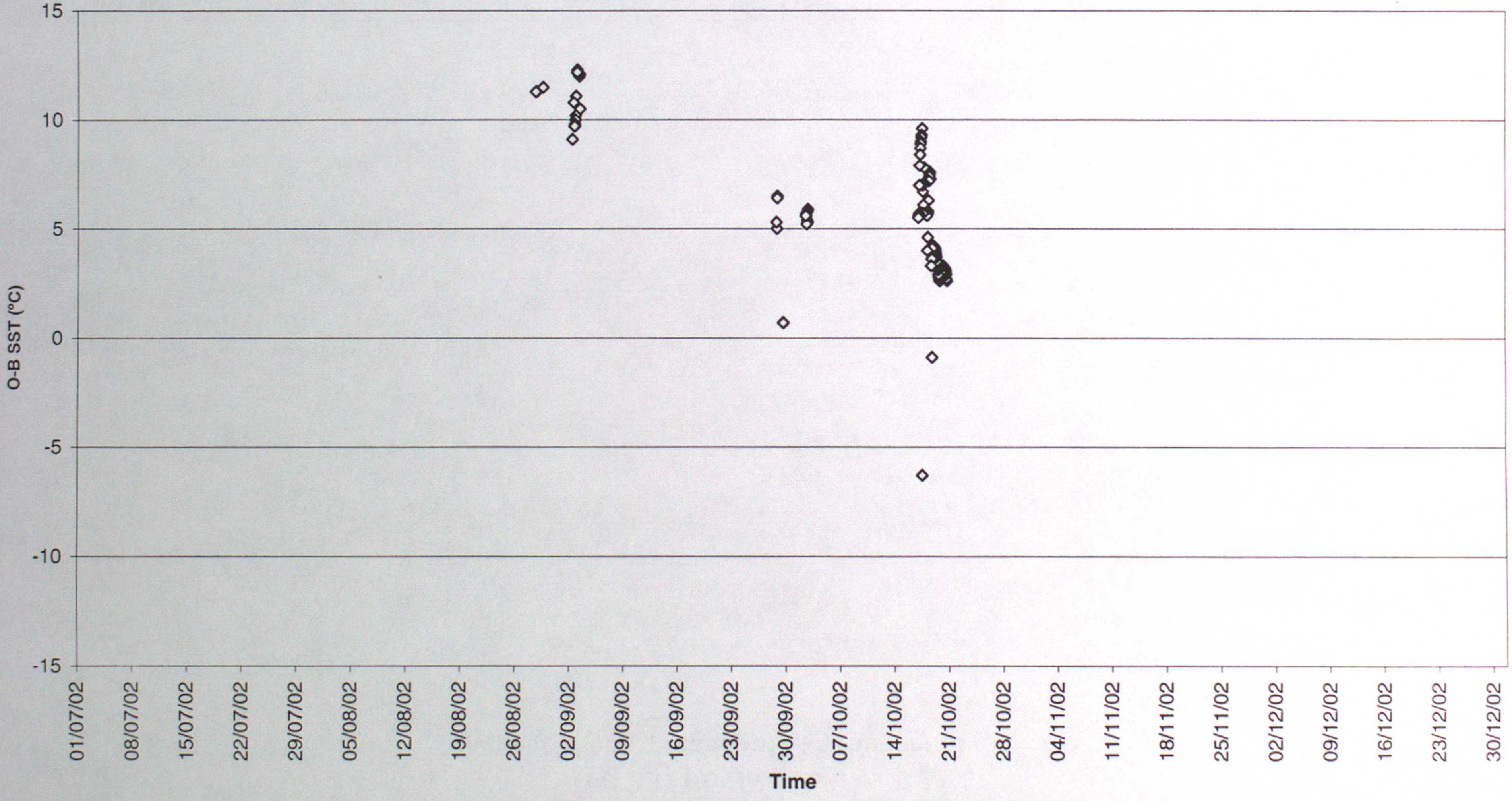
O-B SST (°C) for identifier A7EC
Number of obs. plotted = 45   Number of outliers = 0



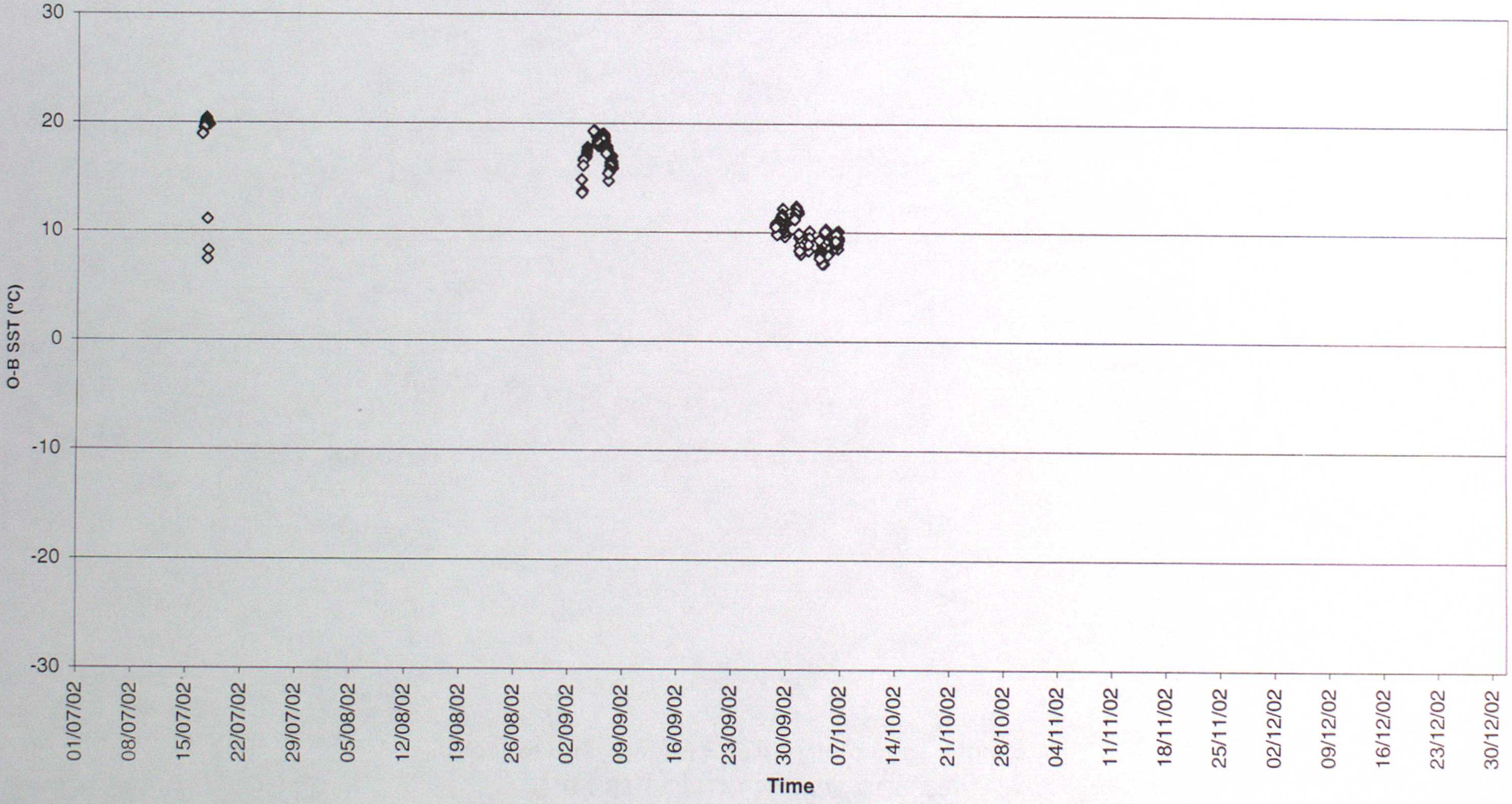
O-B SST (°C) for identifier CGTF
Number of obs. plotted = 293   Number of outliers = 1



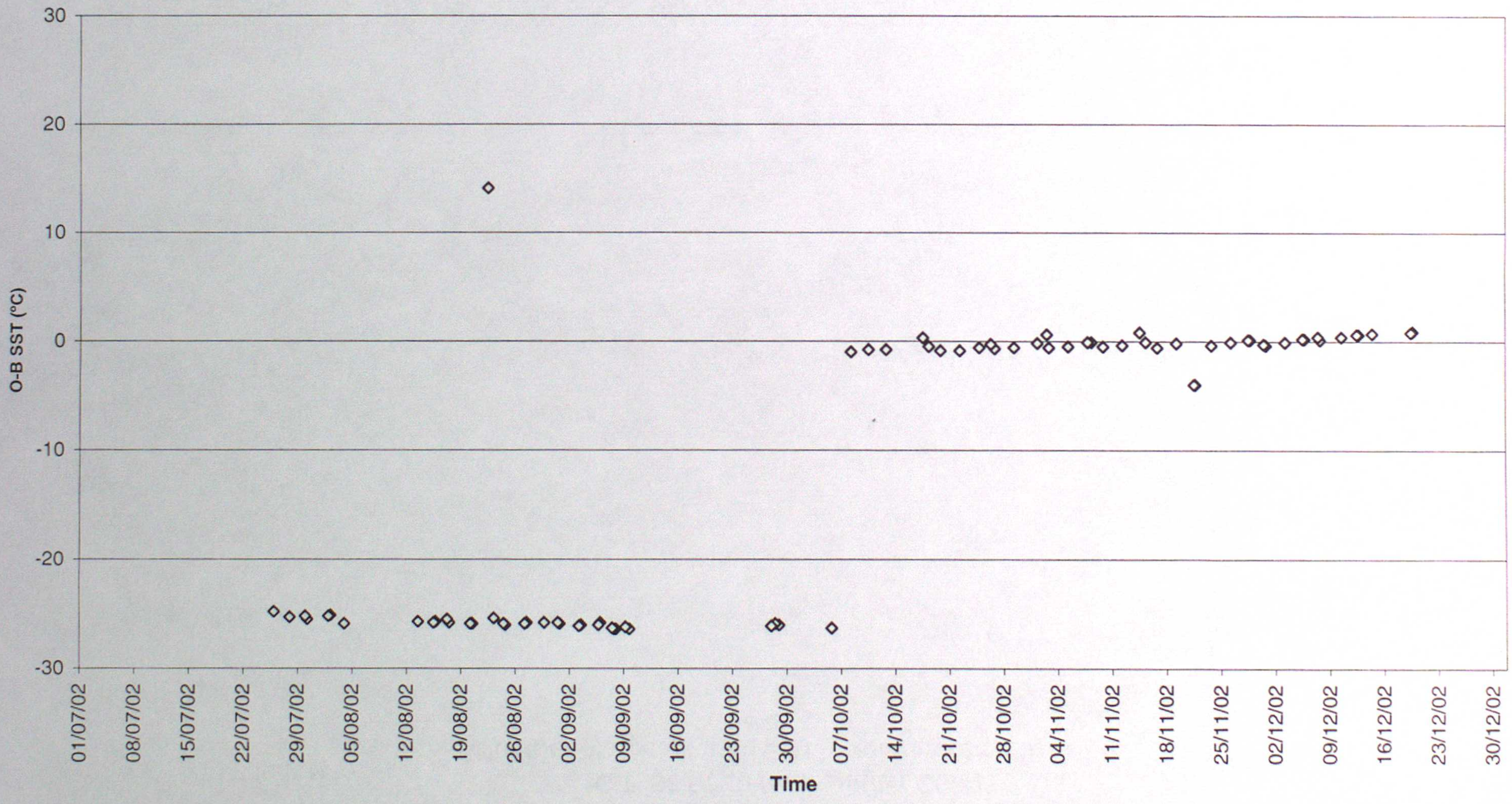
O-B SST (°C) for identifier CG2522
Number of obs. plotted = 112   Number of outliers = 1



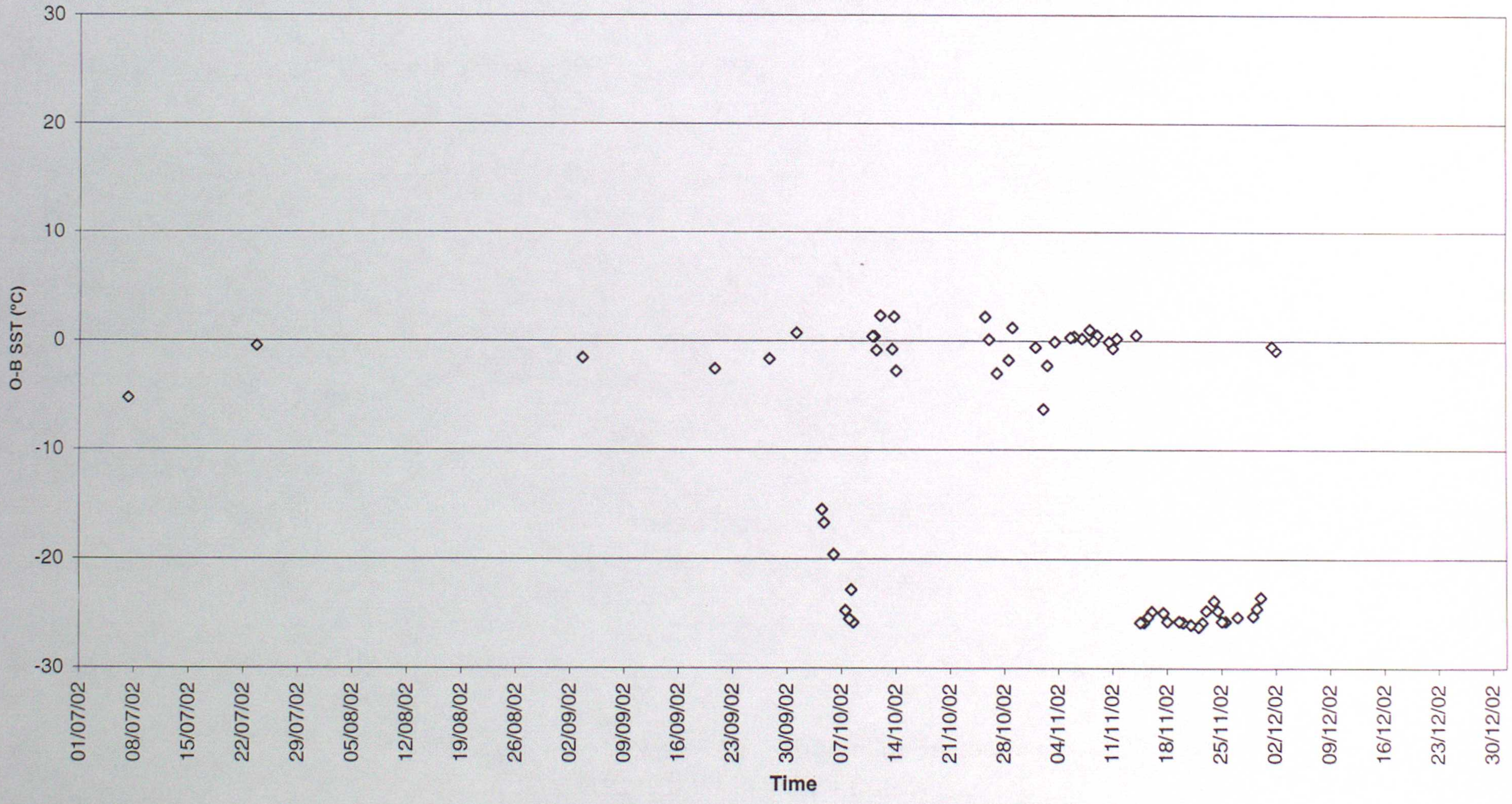
O-B SST (°C) for identifier CG2992
Number of obs. plotted = 177   Number of outliers = 0



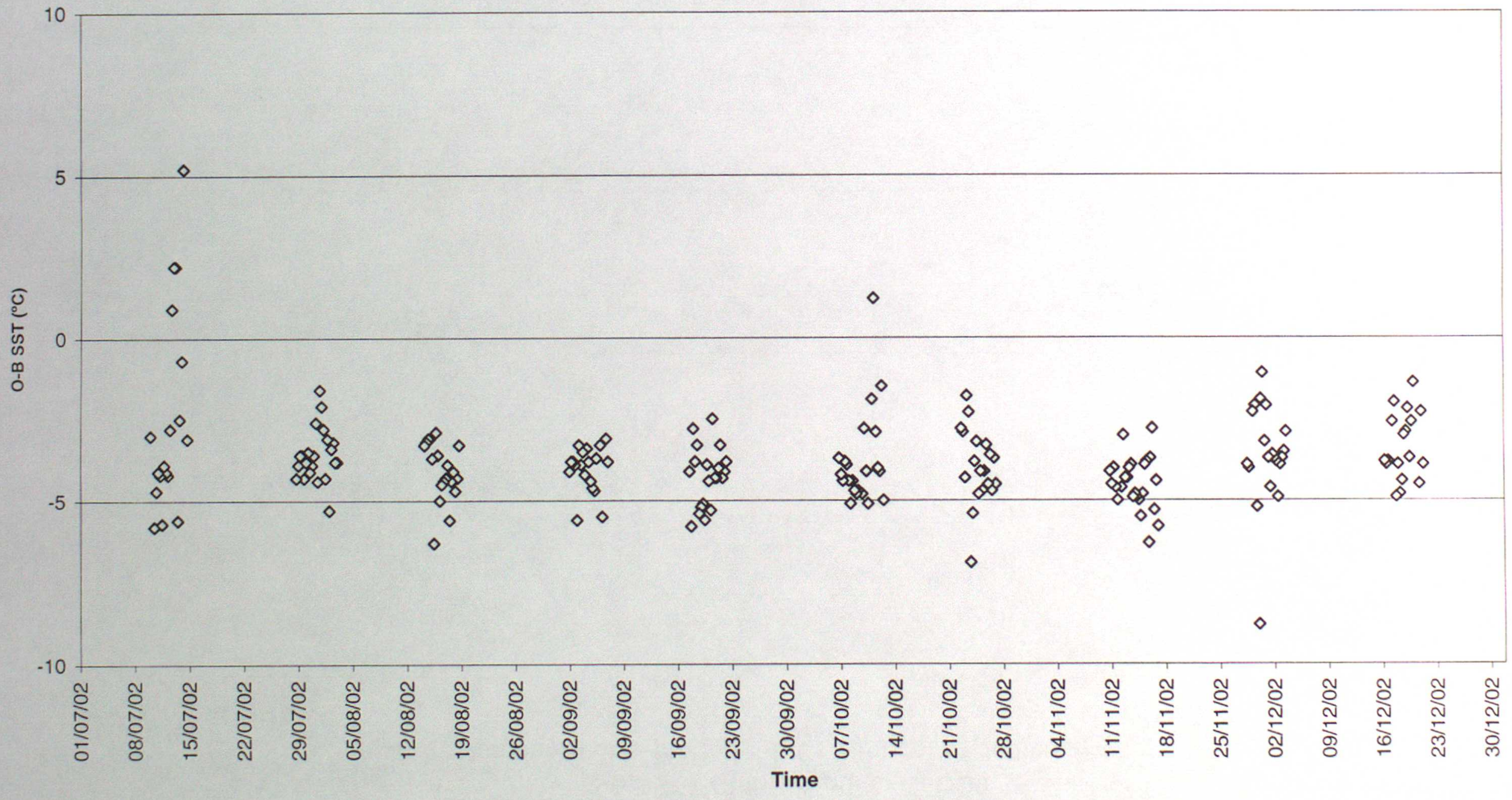
O-B SST (°C) for identifier C6FN4
Number of obs. plotted = 78   Number of outliers = 0



O-B SST (°C) for identifier C6FN5
Number of obs. plotted = 61   Number of outliers = 0

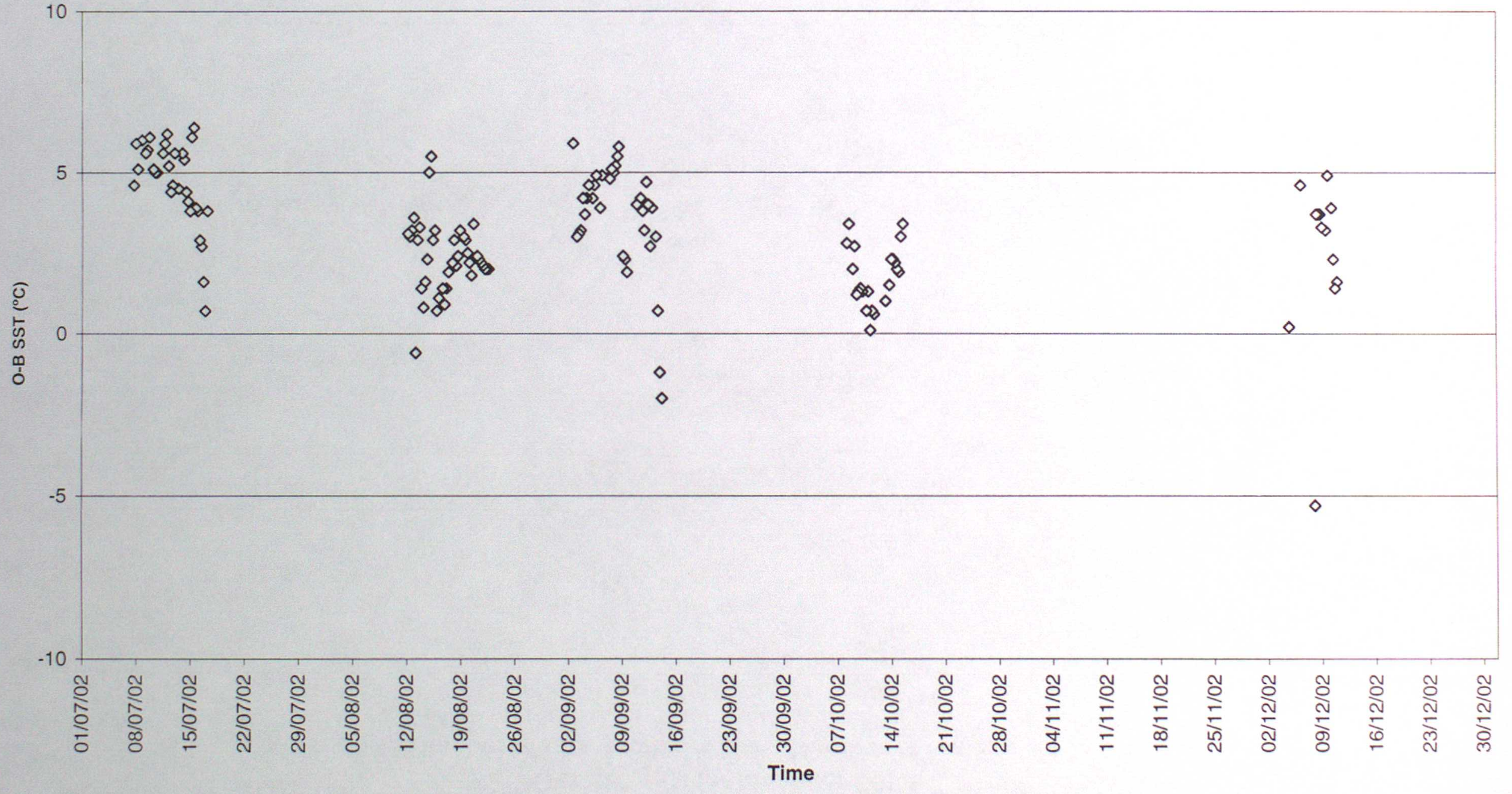


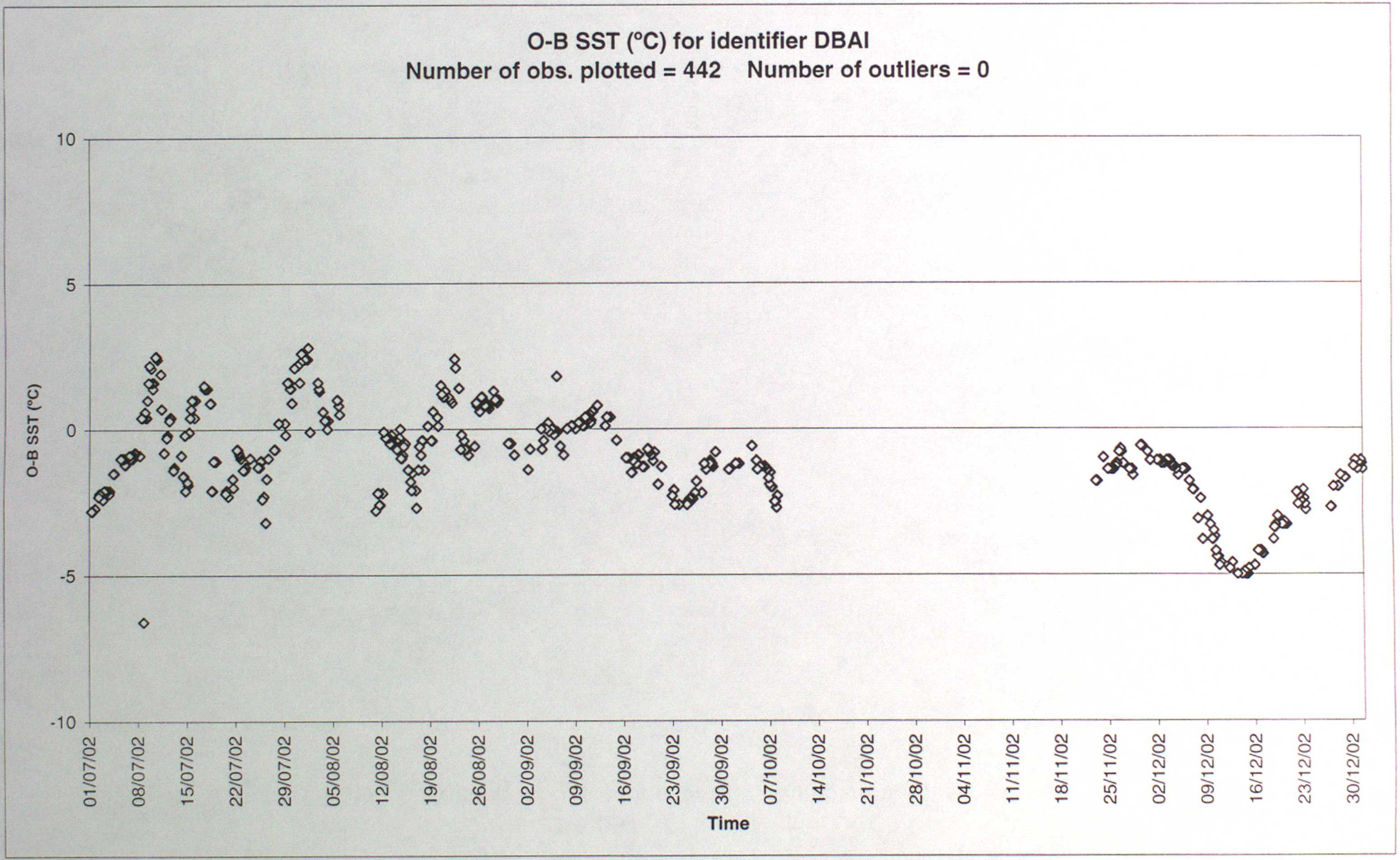
O-B SST (°C) for identifier C6MS4
Number of obs. plotted = 202   Number of outliers = 1

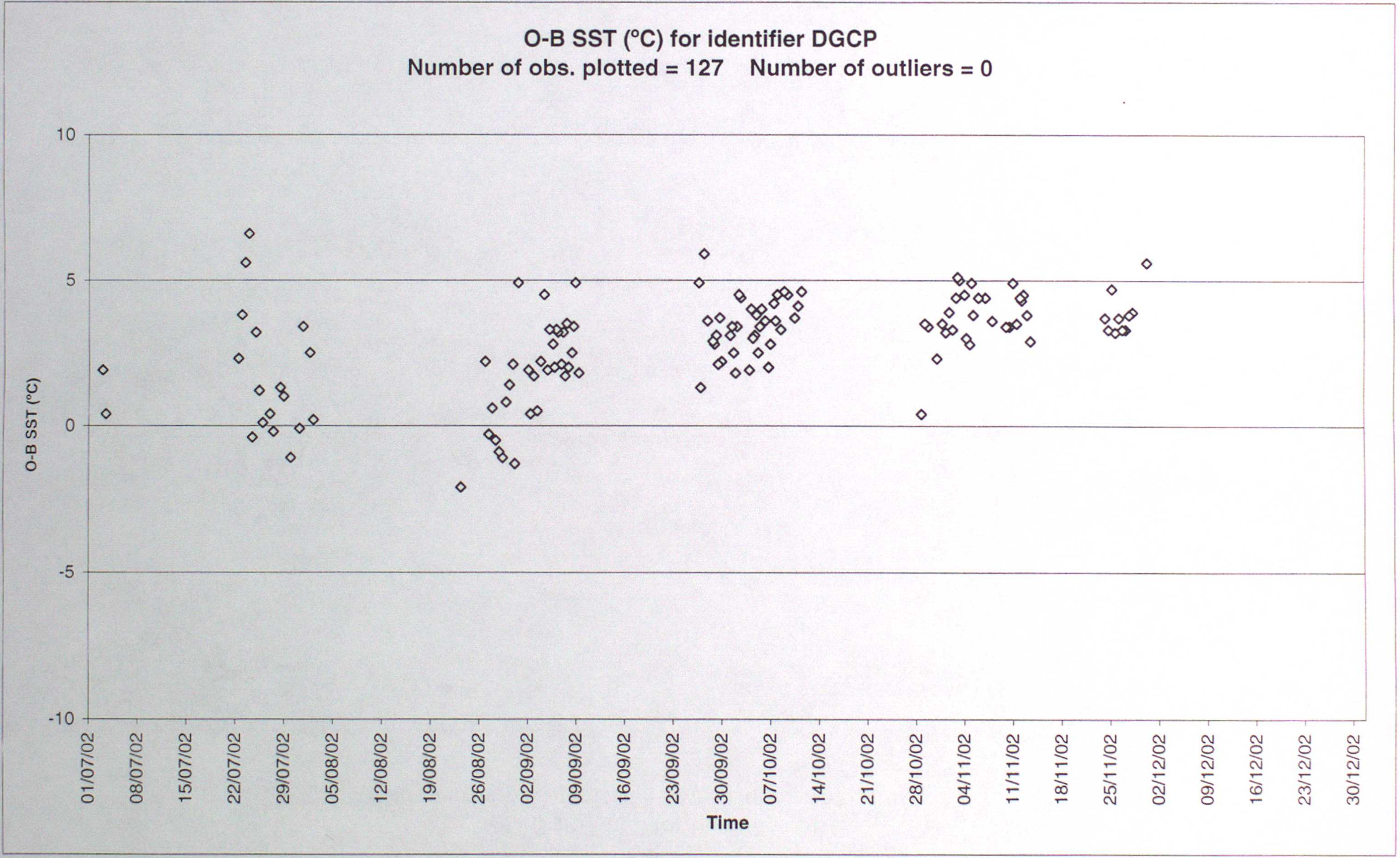


O-B SST (°C) for identifier C6QO9

Number of obs. plotted = 140   Number of outliers = 4

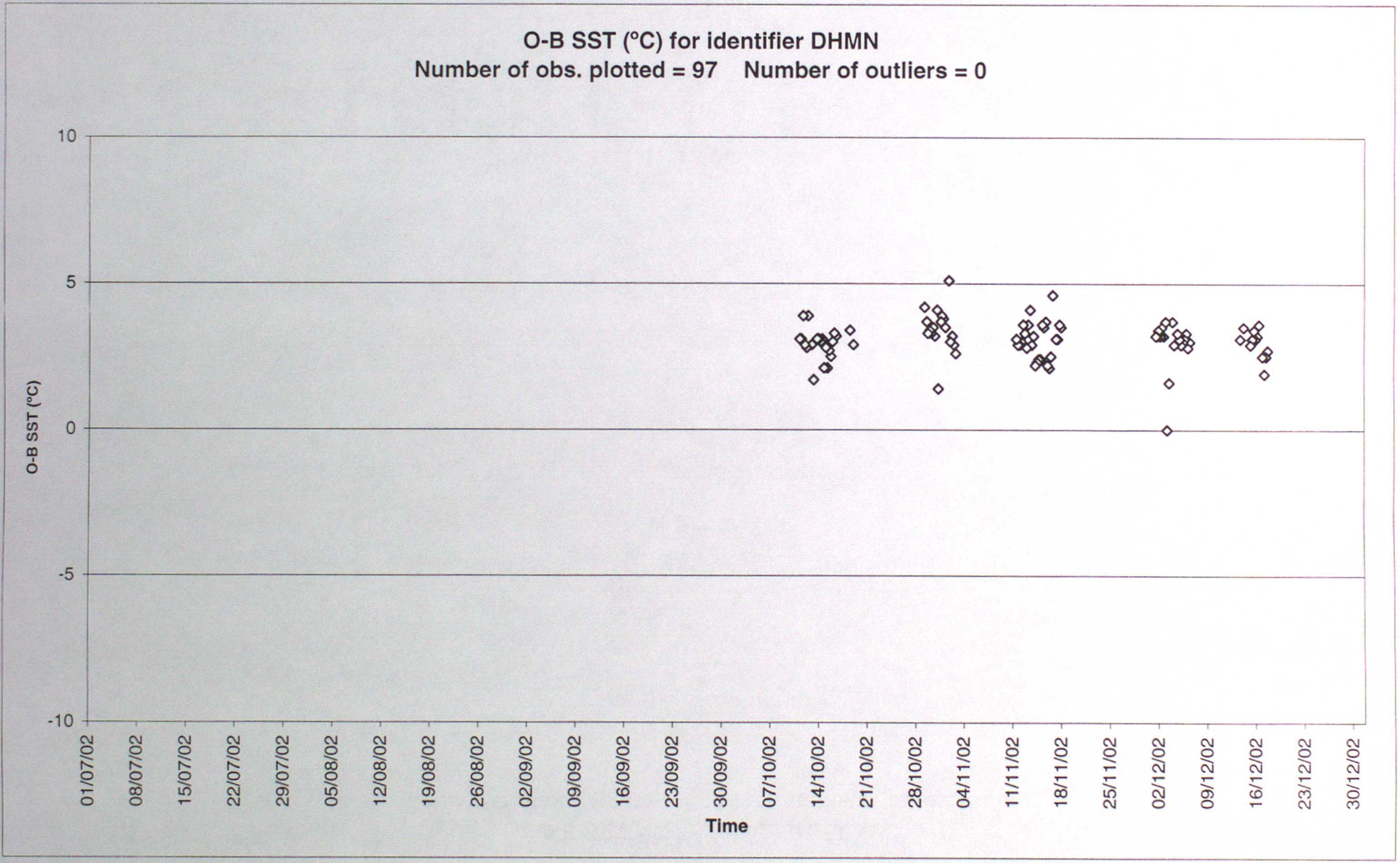



O-B SST (°C) for identifier DBAI
Number of obs. plotted = 442 Number of outliers = 0
O-B SST (°C)
10
5
0
-5
-10
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time



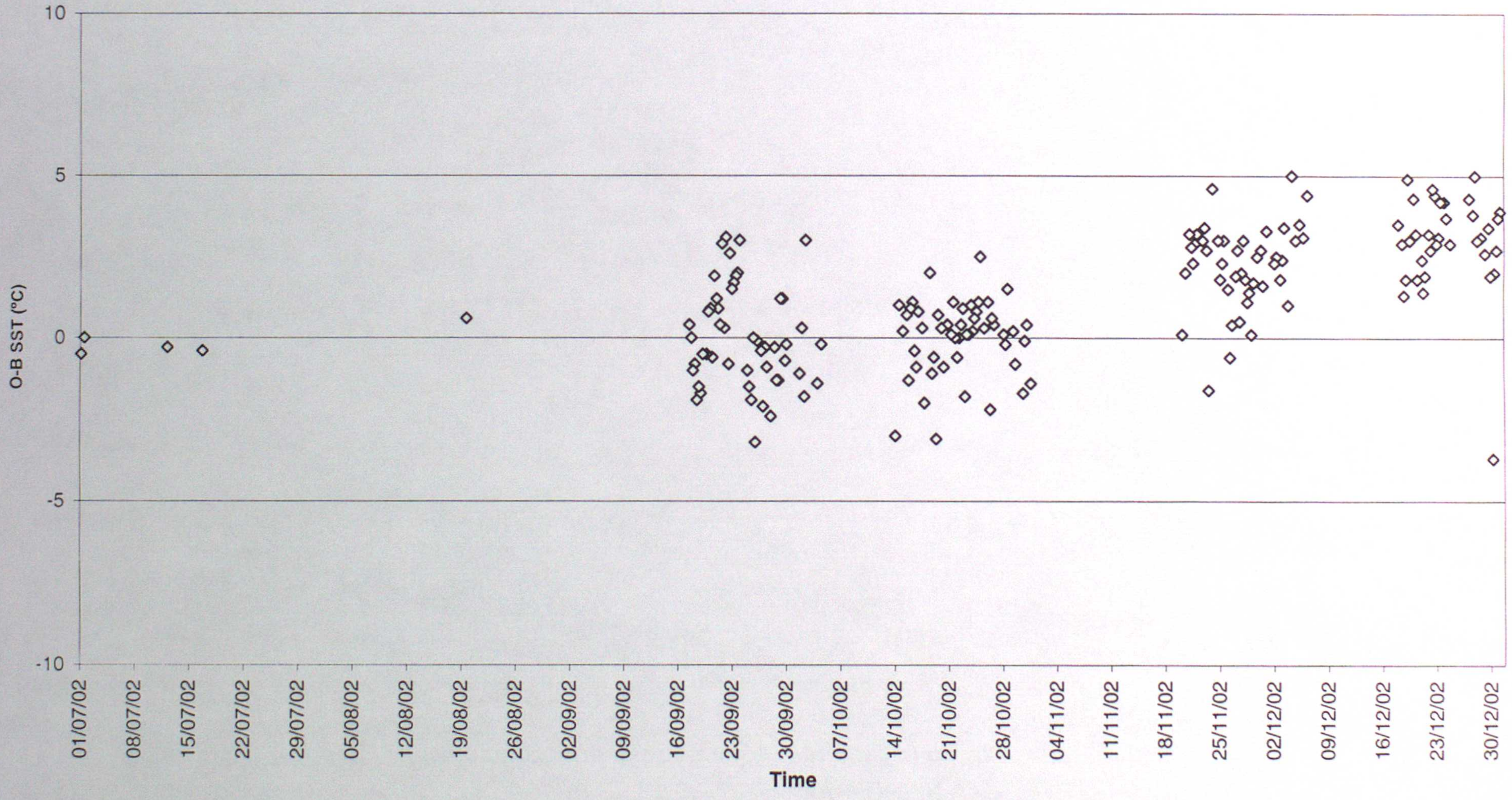
O-B SST (°C) for identifier DGCP

Number of obs. plotted = 127   Number of outliers = 0

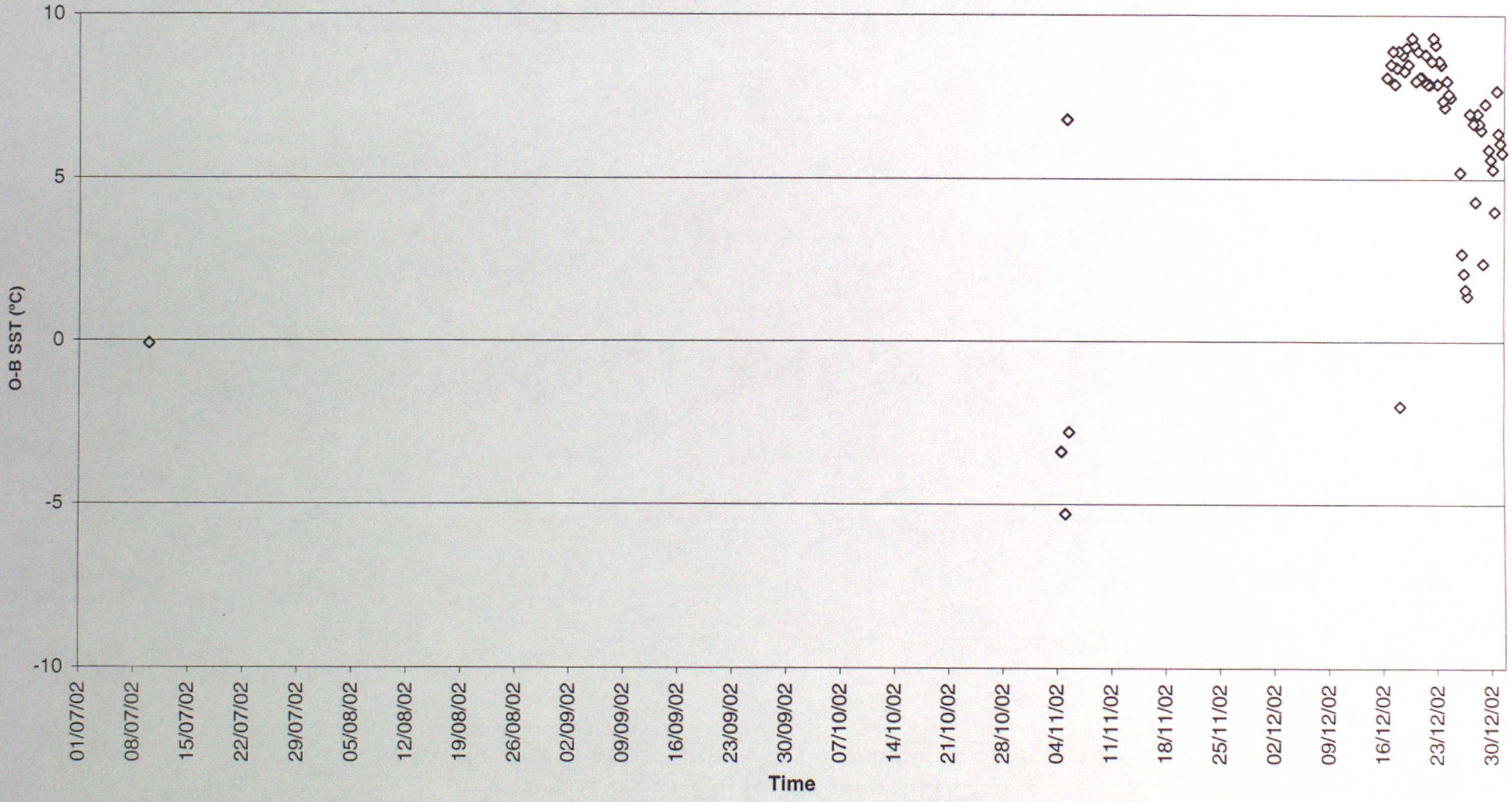

O-B SST (°C) for identifier DHMN
Number of obs. plotted = 97   Number of outliers = 0

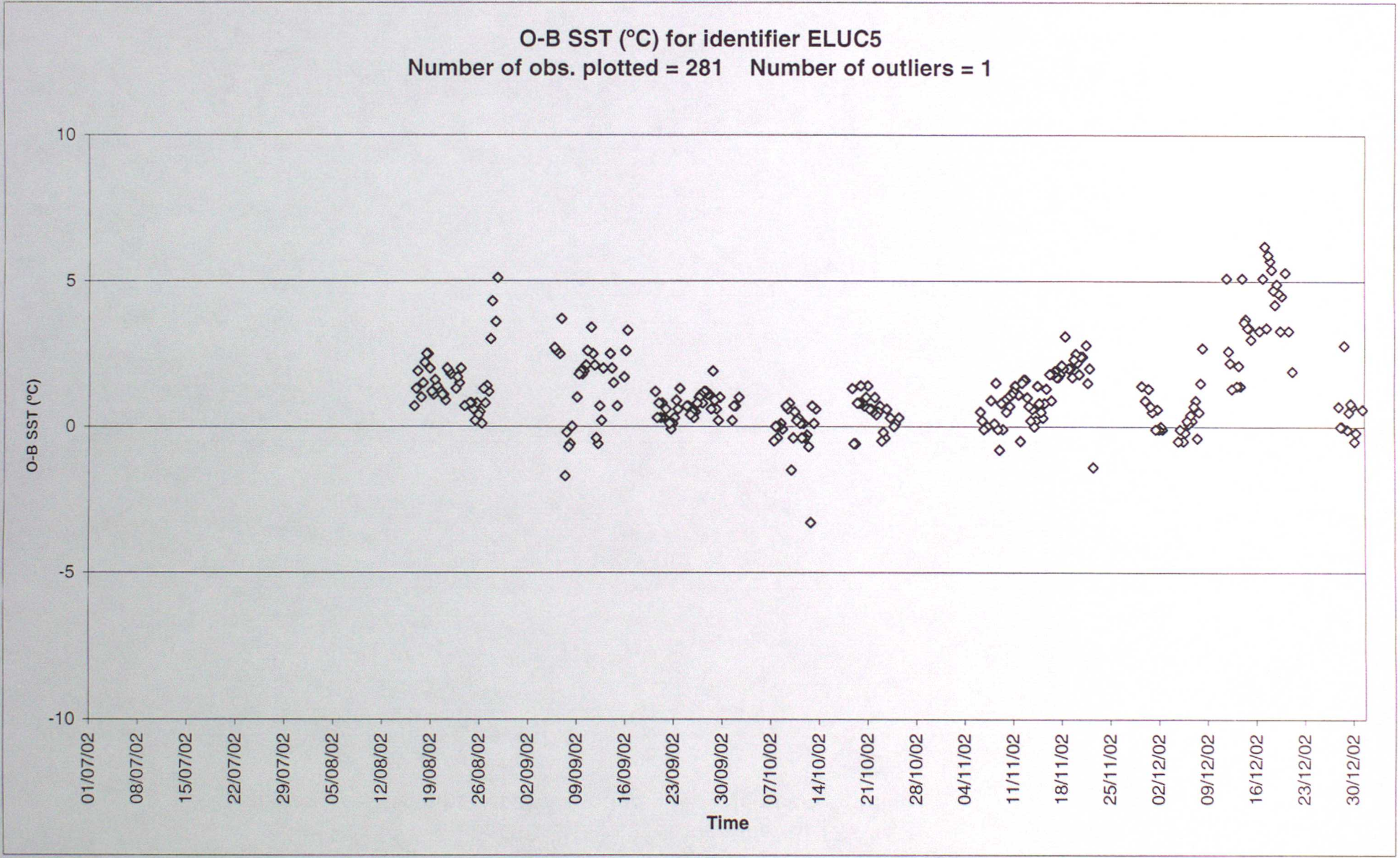
O-B SST (°C) for identifier ELKU8

Number of obs. plotted = 184   Number of outliers = 0



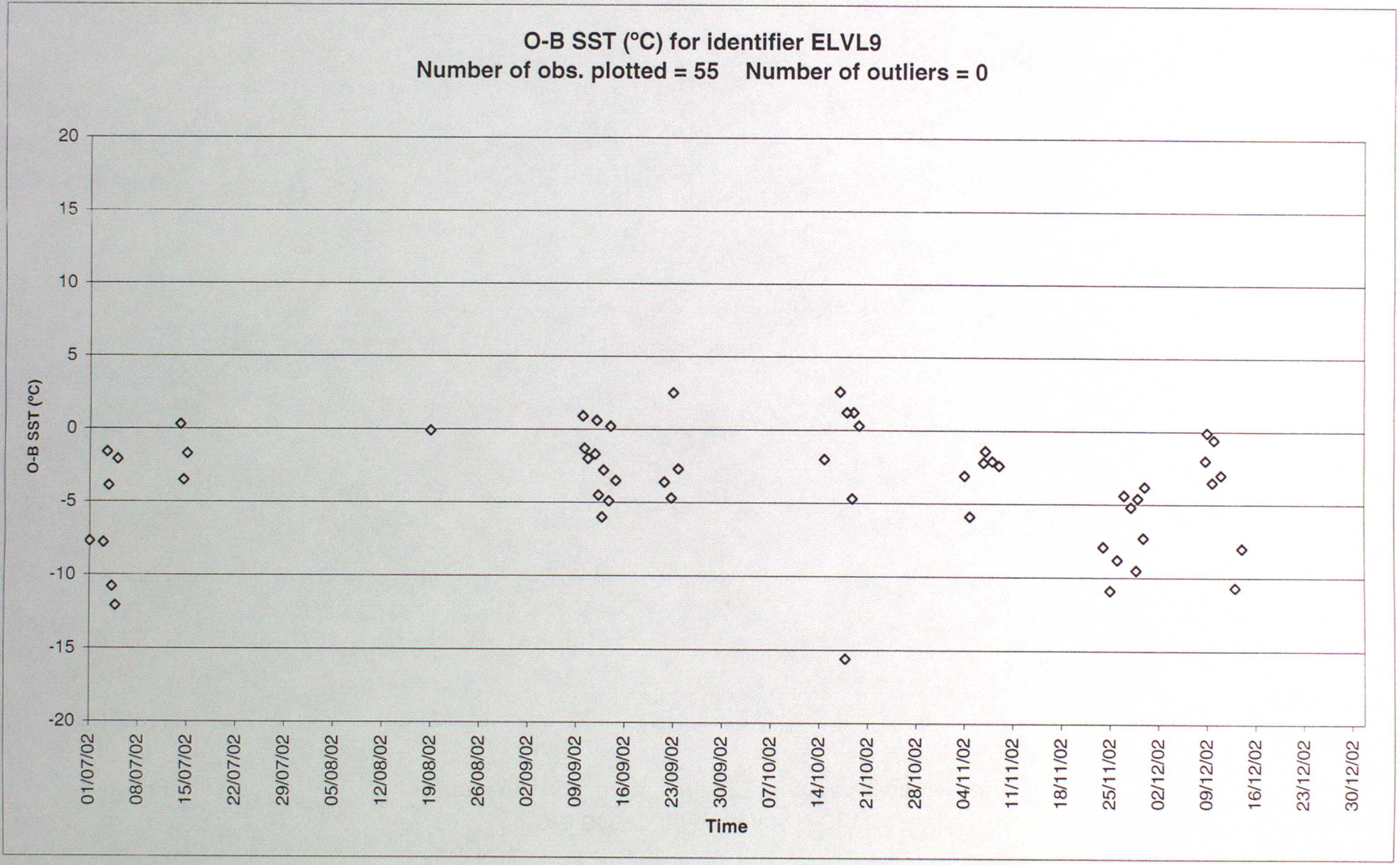
O-B SST (°C) for identifier ELTS6
Number of obs. plotted = 58   Number of outliers = 2





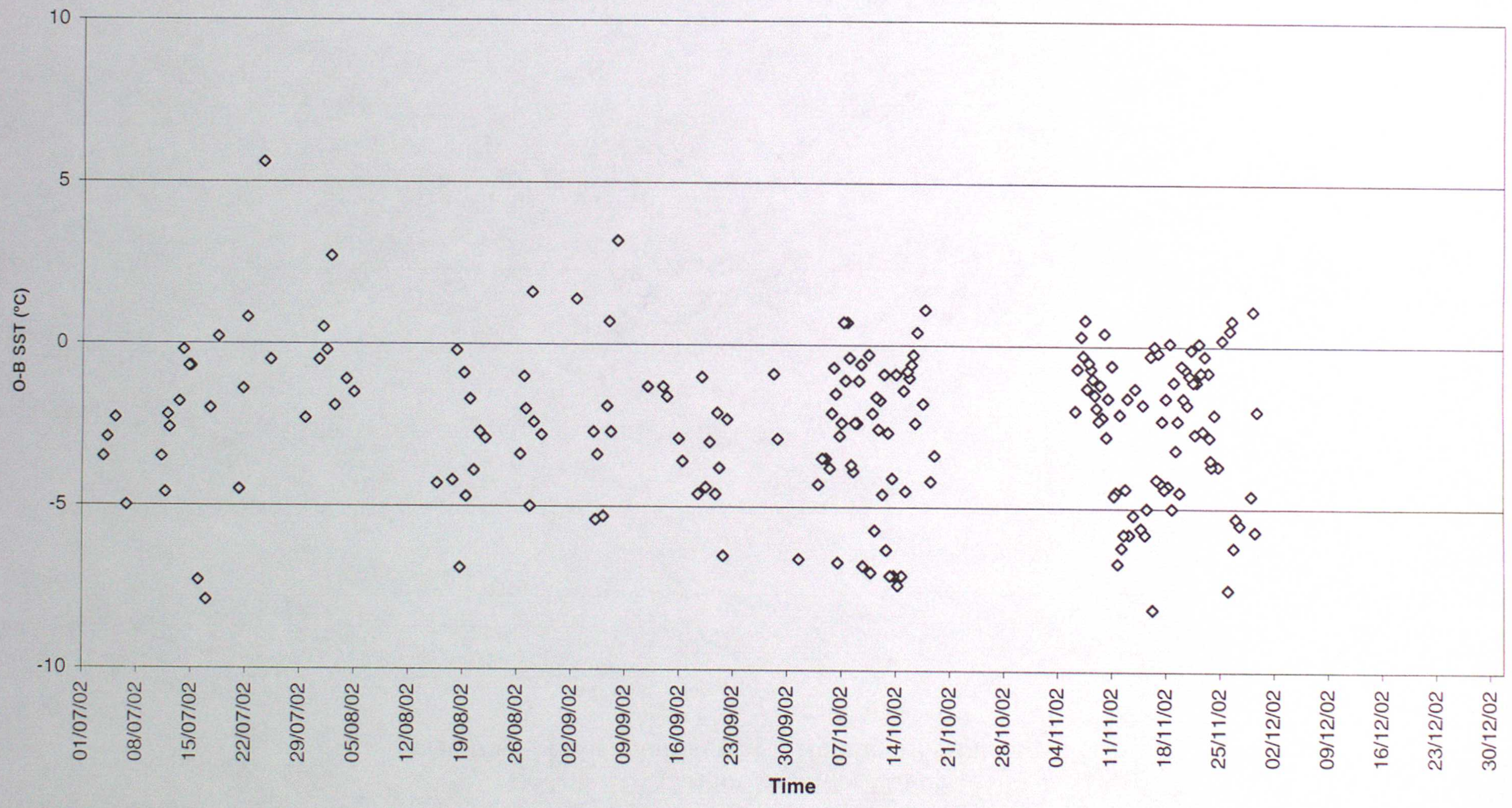
O-B SST (°C) for identifier ELUC5

Number of obs. plotted = 281   Number of outliers = 1

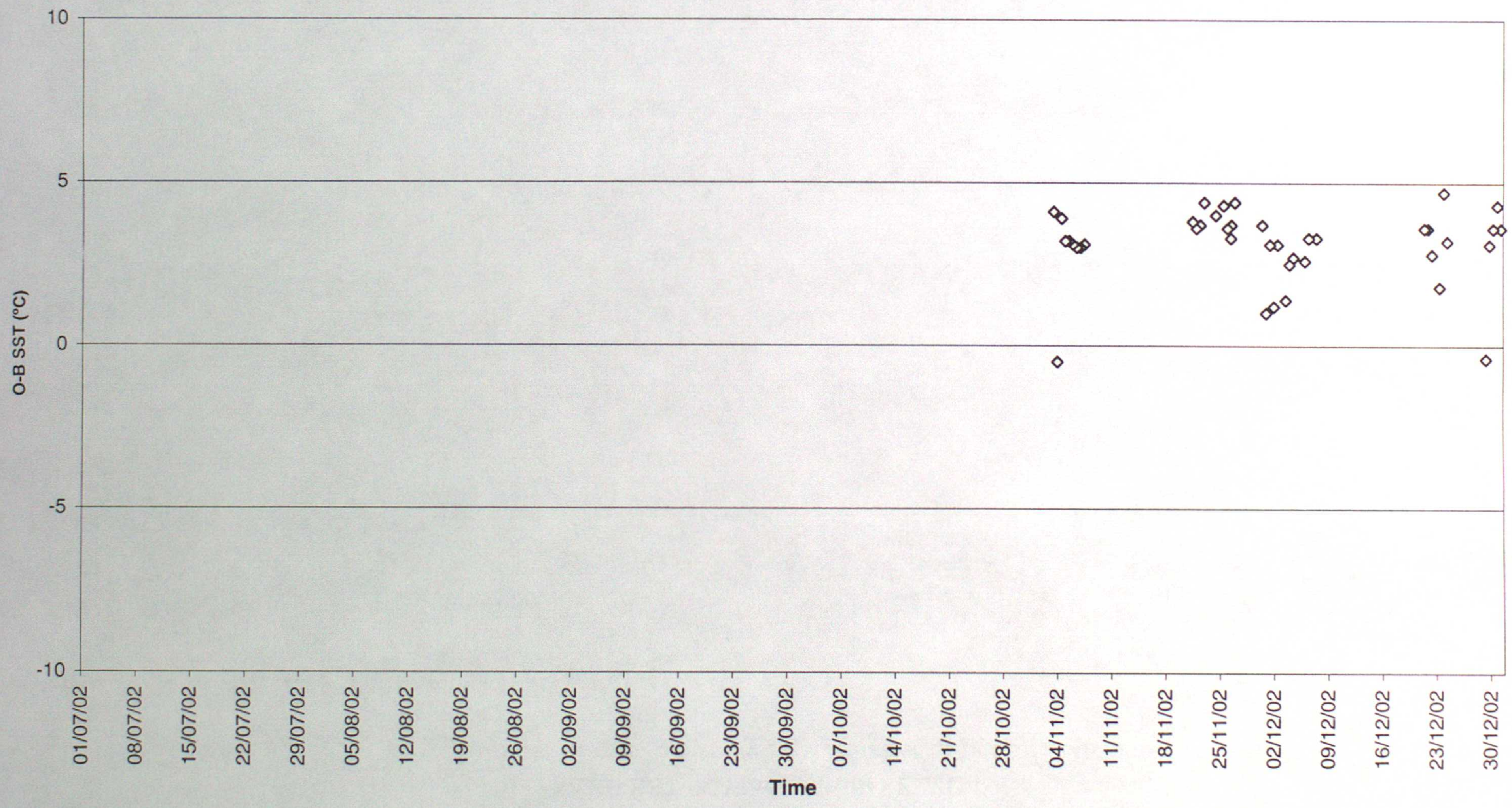


O-B SST (°C) for identifier ELVL9
Number of obs. plotted = 55   Number of outliers = 0

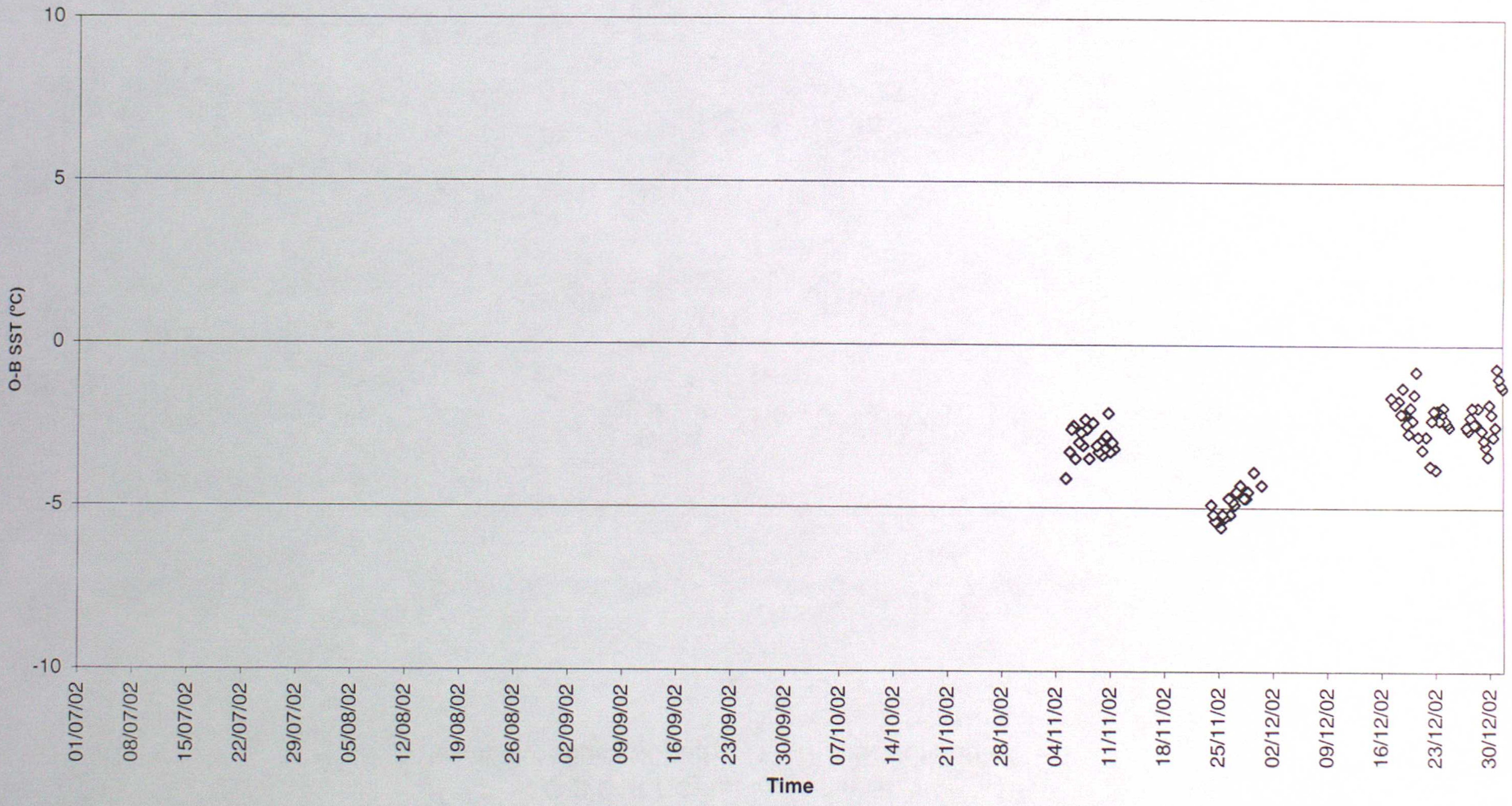
O-B SST (°C) for identifier ELVO5
Number of obs. plotted = 201   Number of outliers = 0



O-B SST (°C) for identifier ELWY3
Number of obs. plotted = 41   Number of outliers = 0

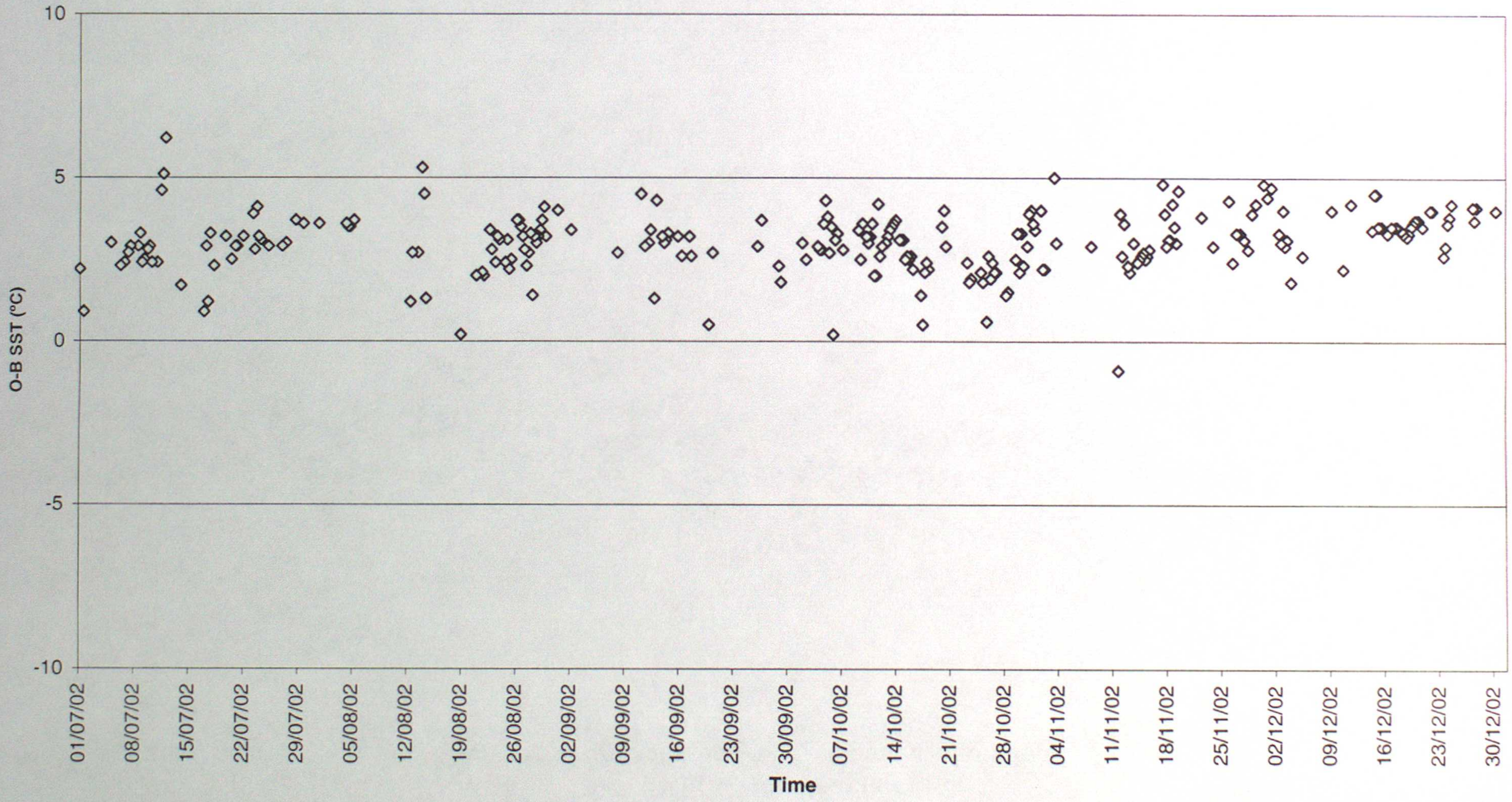


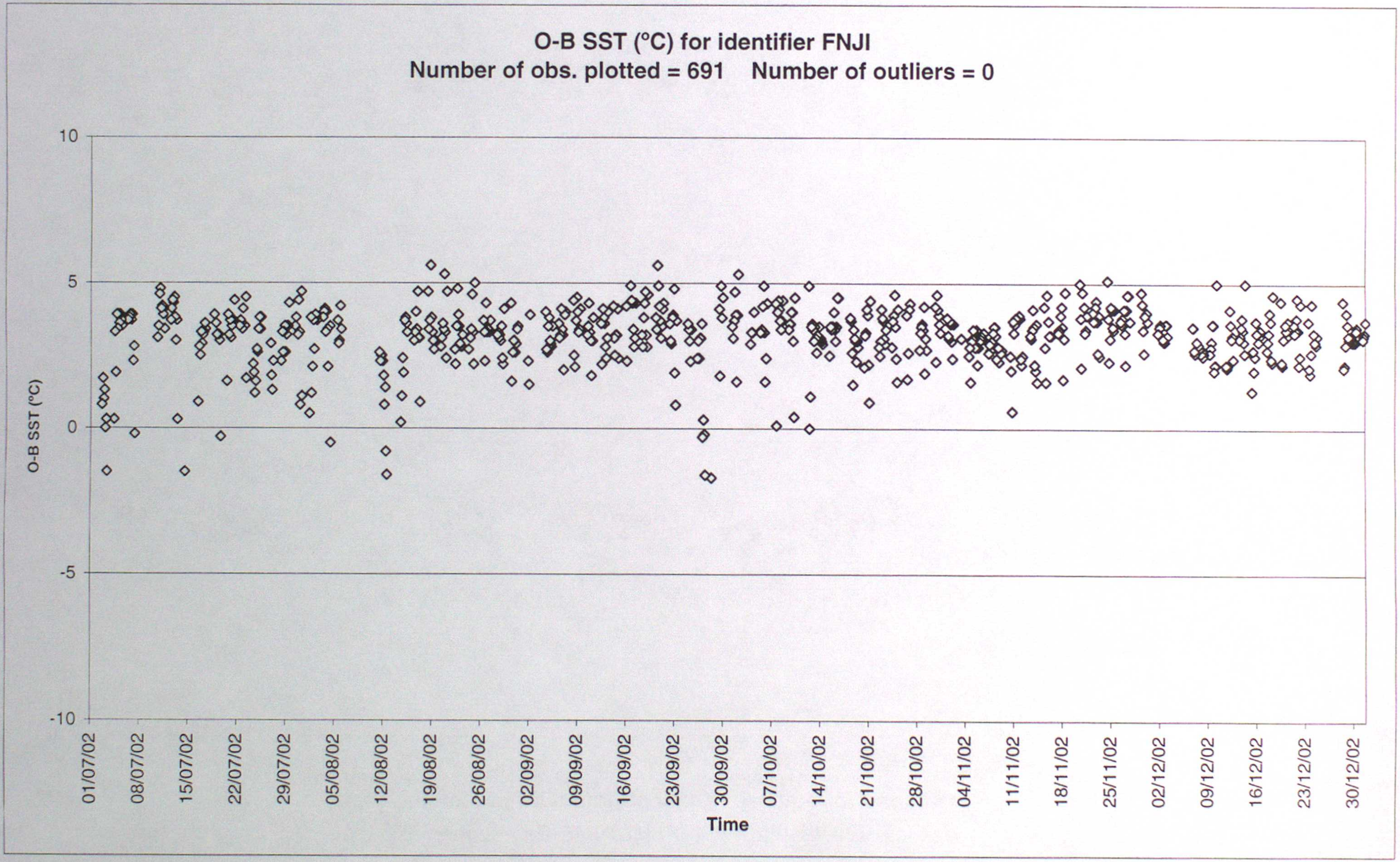
O-B SST (°C) for identifier ELXO4
Number of obs. plotted = 86   Number of outliers = 0

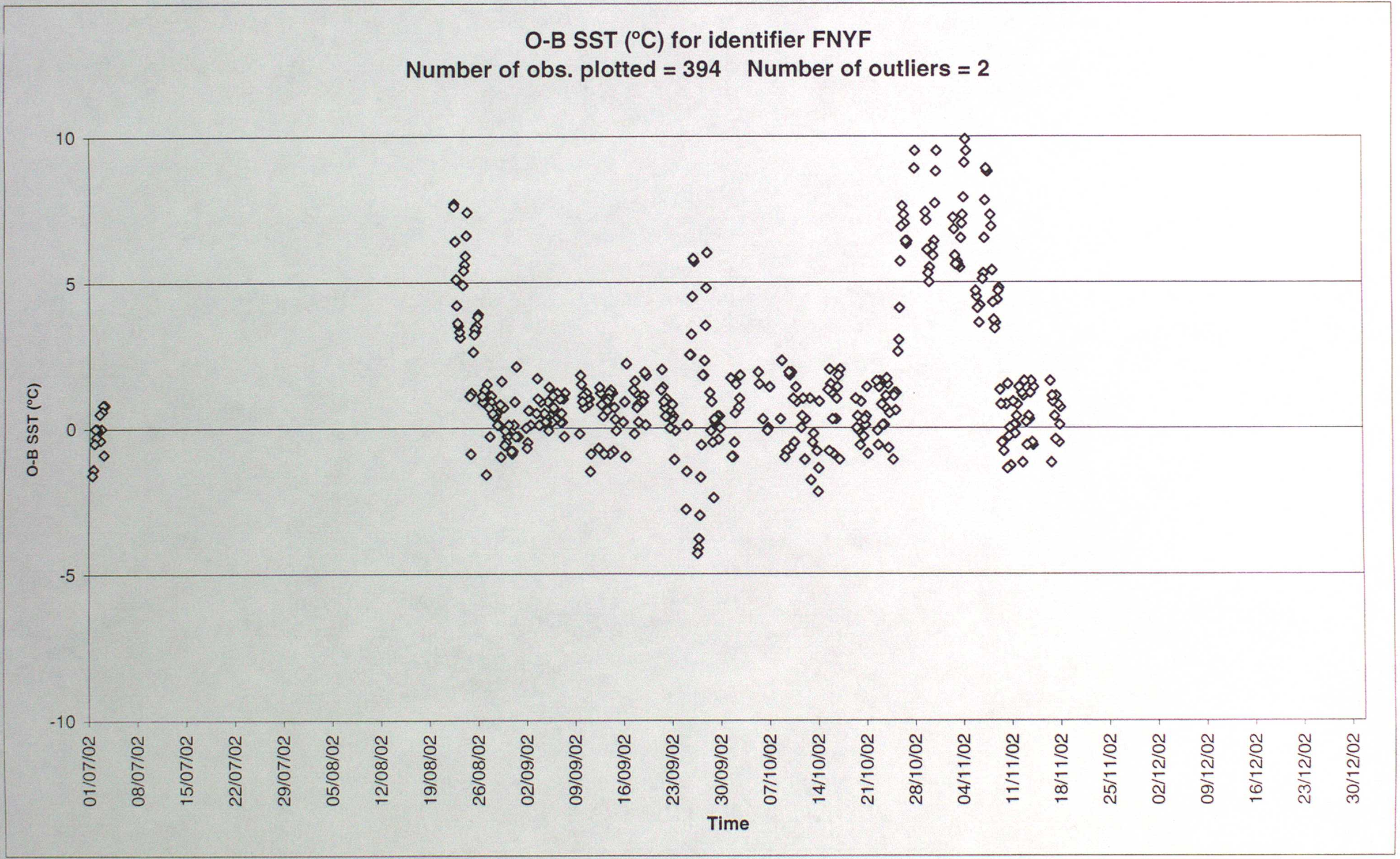


O-B SST (ºC) for identifier ELYE8

Number of obs. plotted = 256   Number of outliers = 3

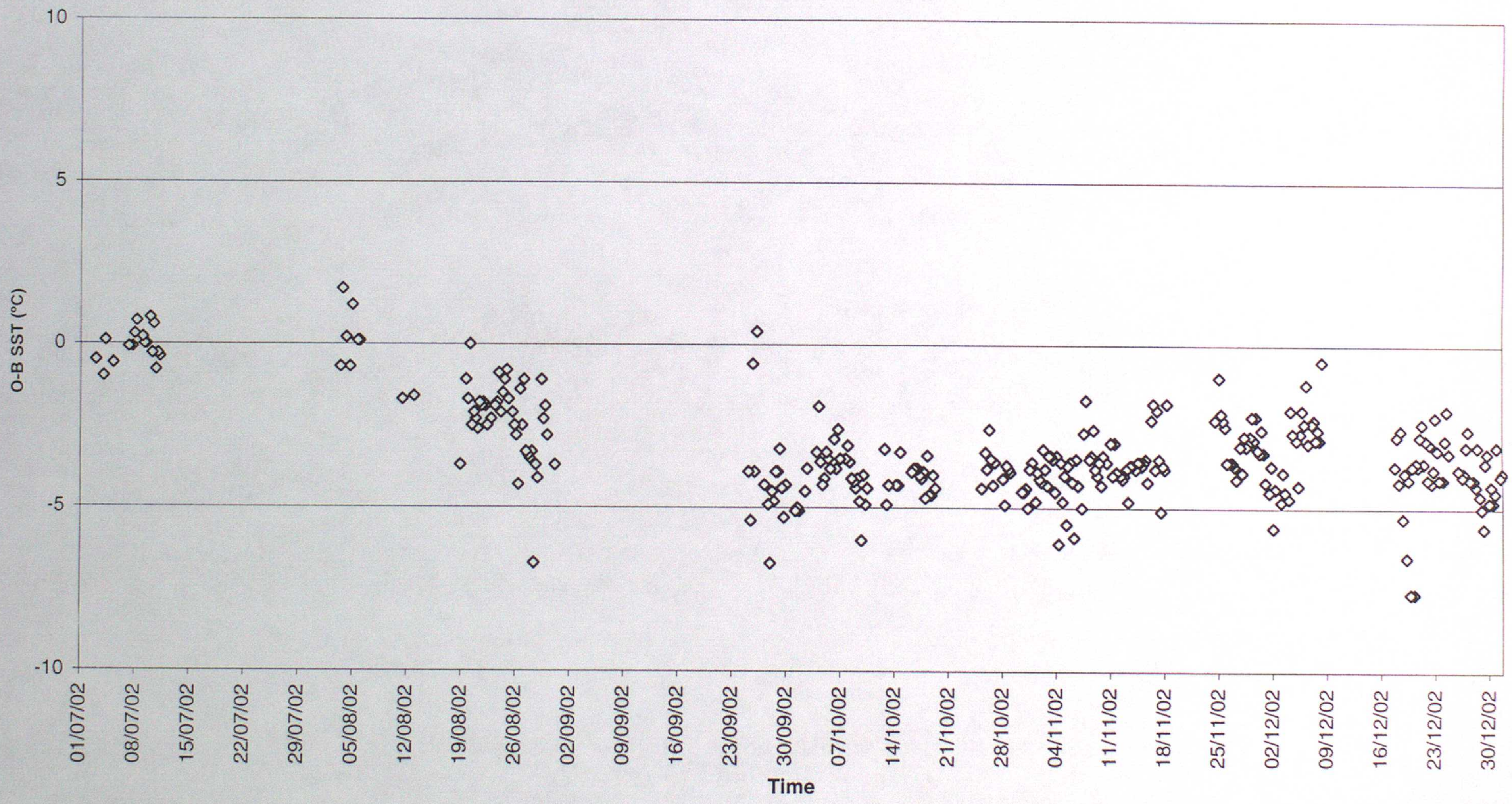



O-B SST (°C) for identifier FNJI
Number of obs. plotted = 691   Number of outliers = 0

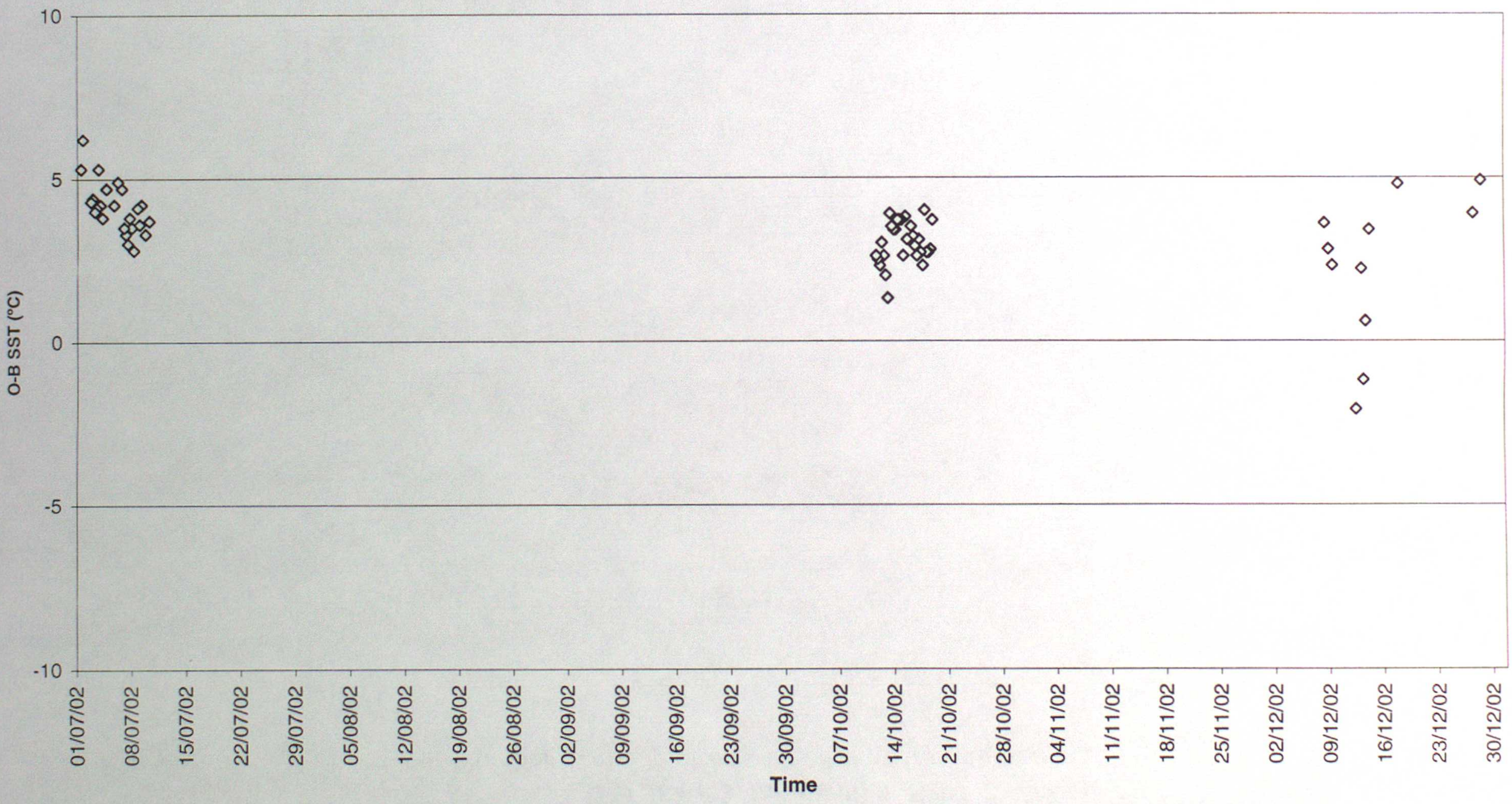


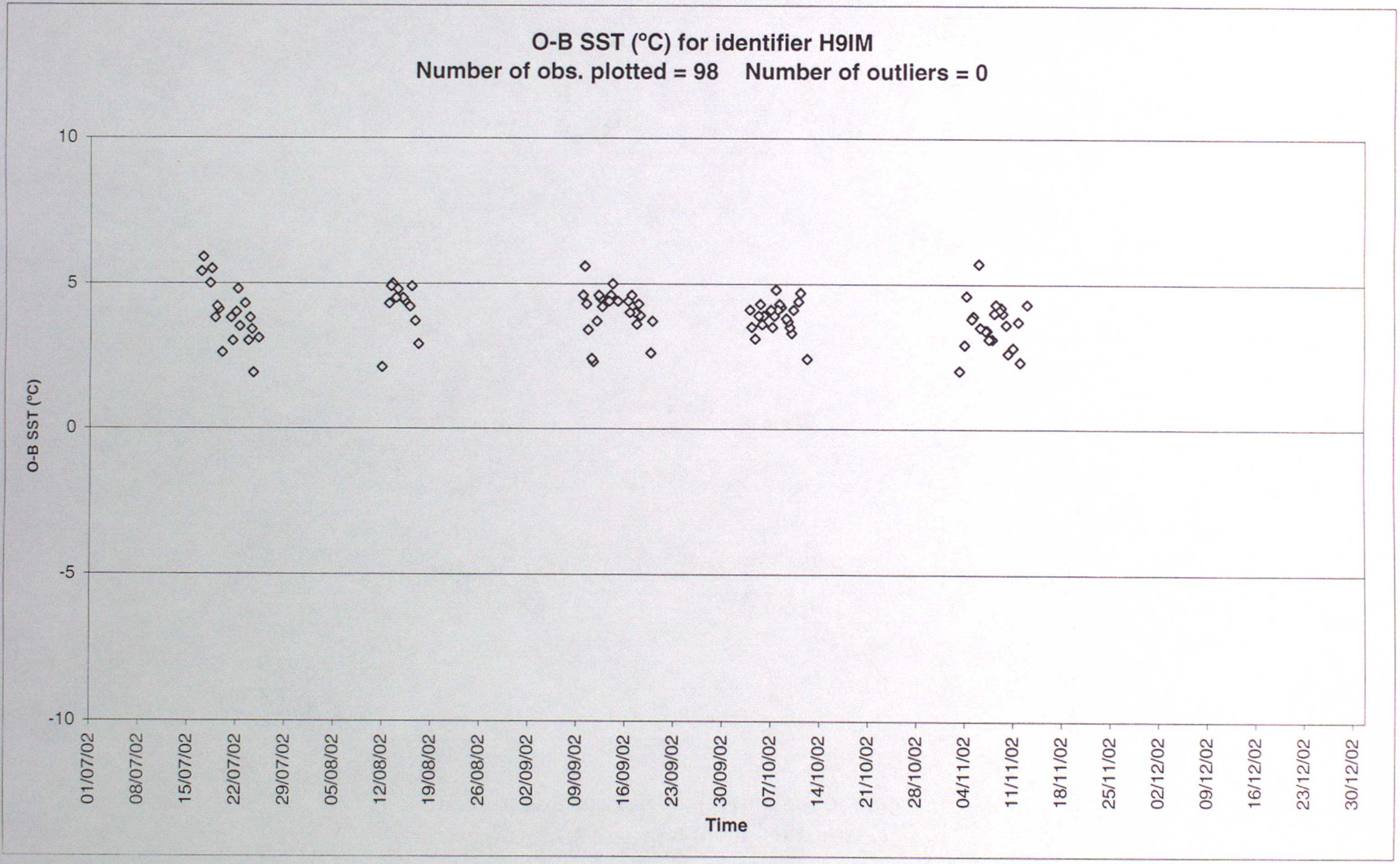
O-B SST (°C) for identifier FNYF
Number of obs. plotted = 394   Number of outliers = 2

O-B SST (°C) for identifier H3QA
Number of obs. plotted = 307   Number of outliers = 0

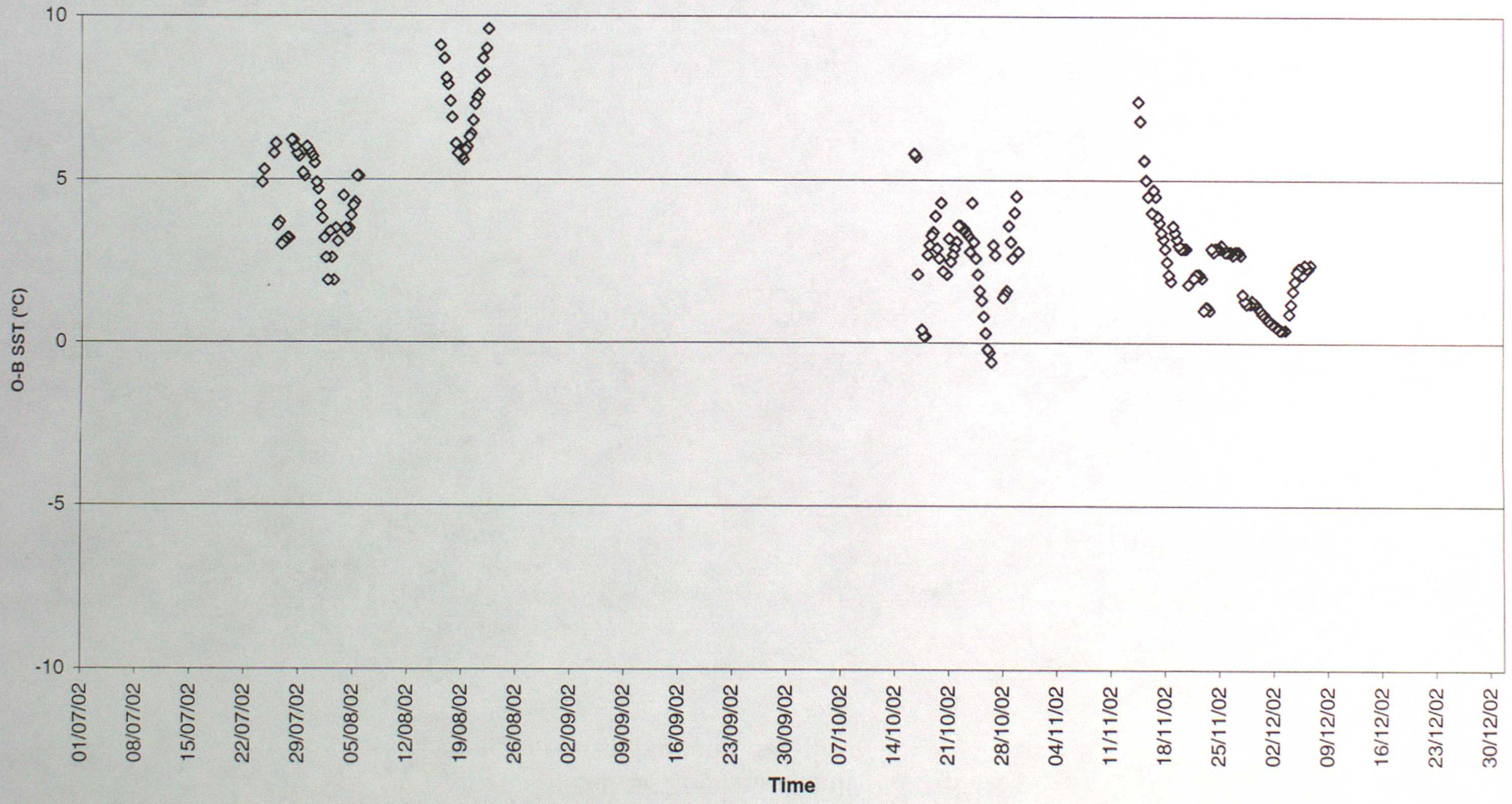


O-B SST (°C) for identifier H9GW
Number of obs. plotted = 64   Number of outliers = 1



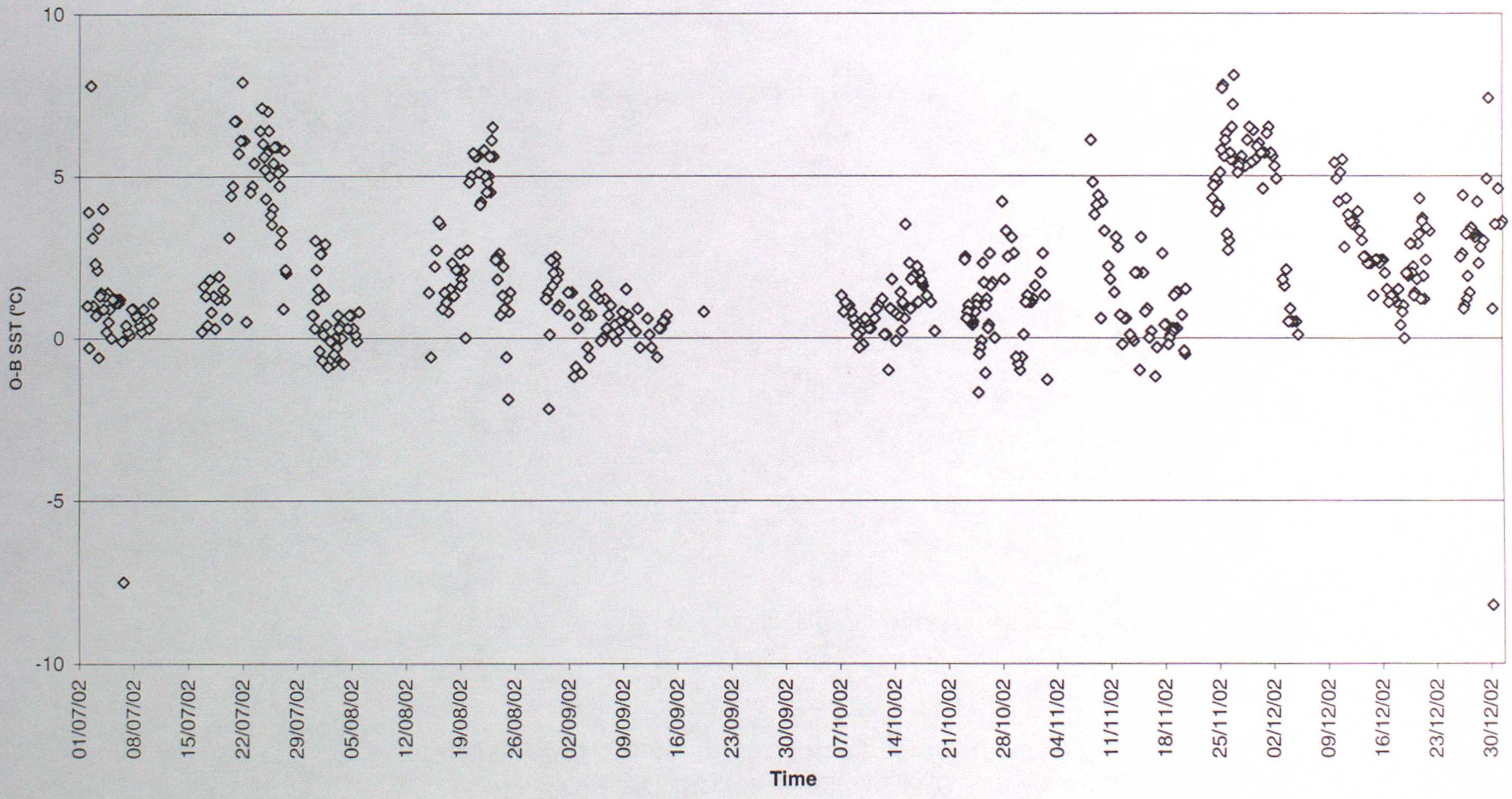


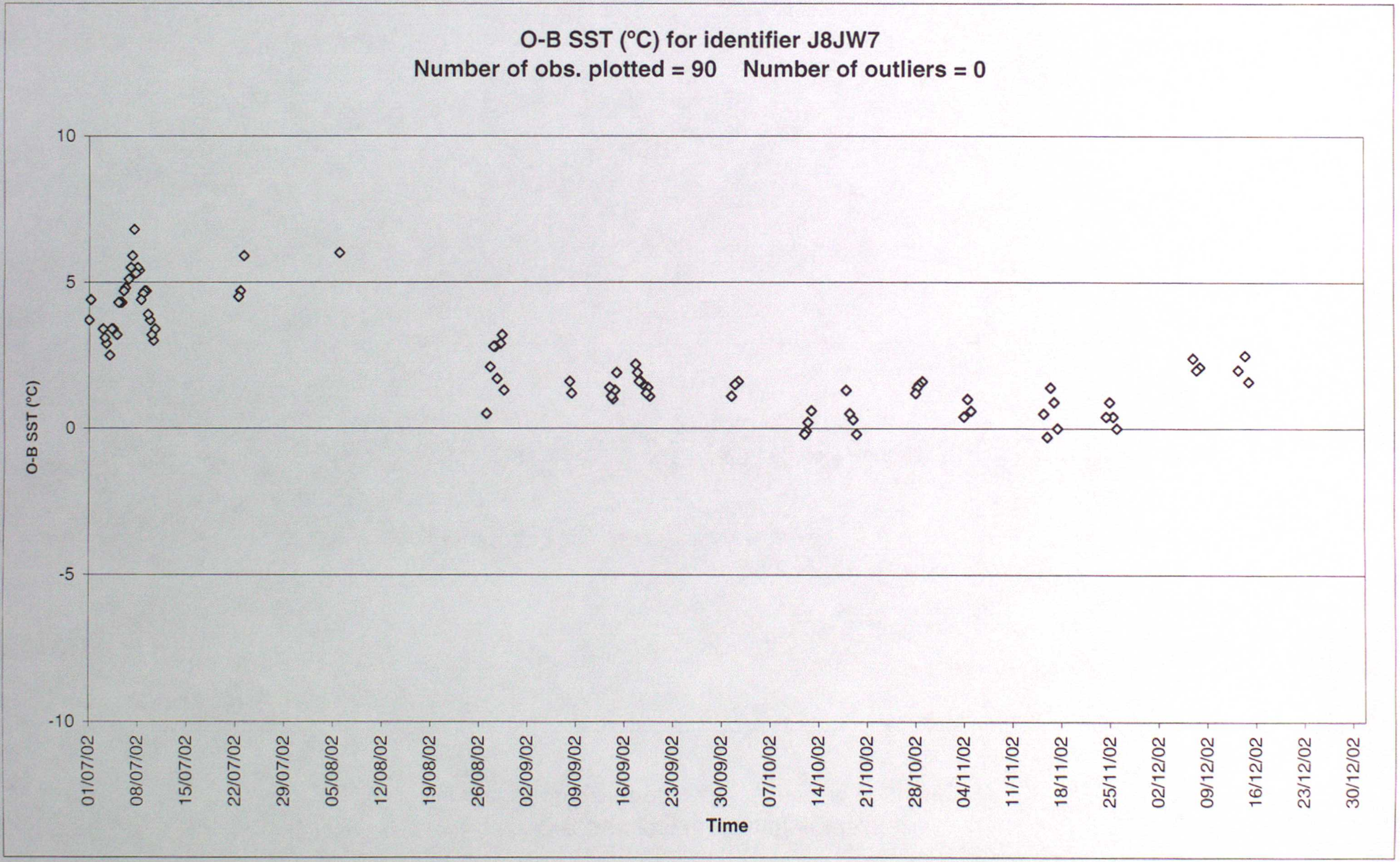
O-B SST (°C) for identifier H9IM
Number of obs. plotted = 98   Number of outliers = 0



O-B SST (ºC) for identifier H9RS
Number of obs. plotted = 201   Number of outliers = 28

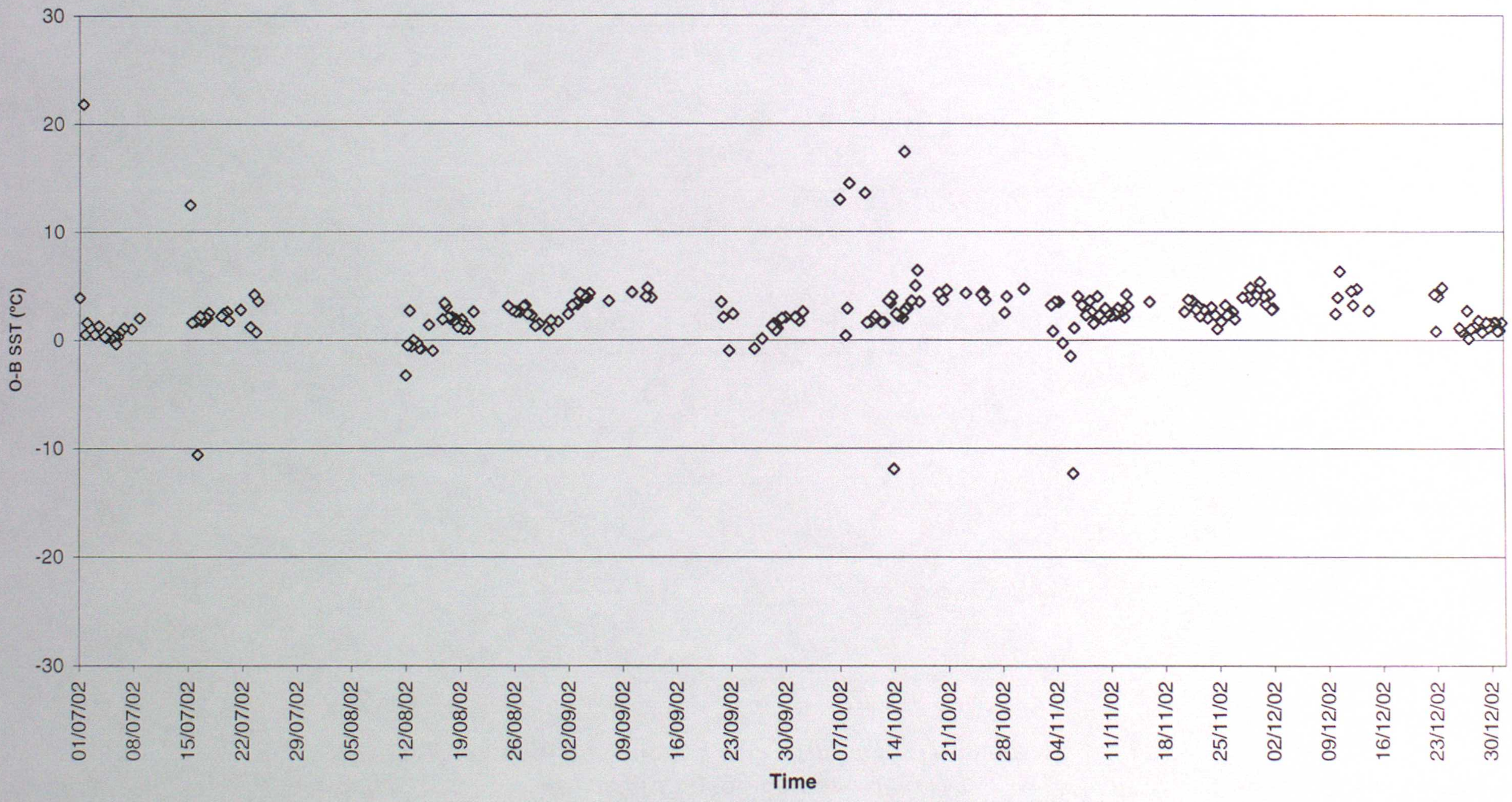
O-B SST (ºC) for identifier JKHH
Number of obs. plotted = 528   Number of outliers = 0



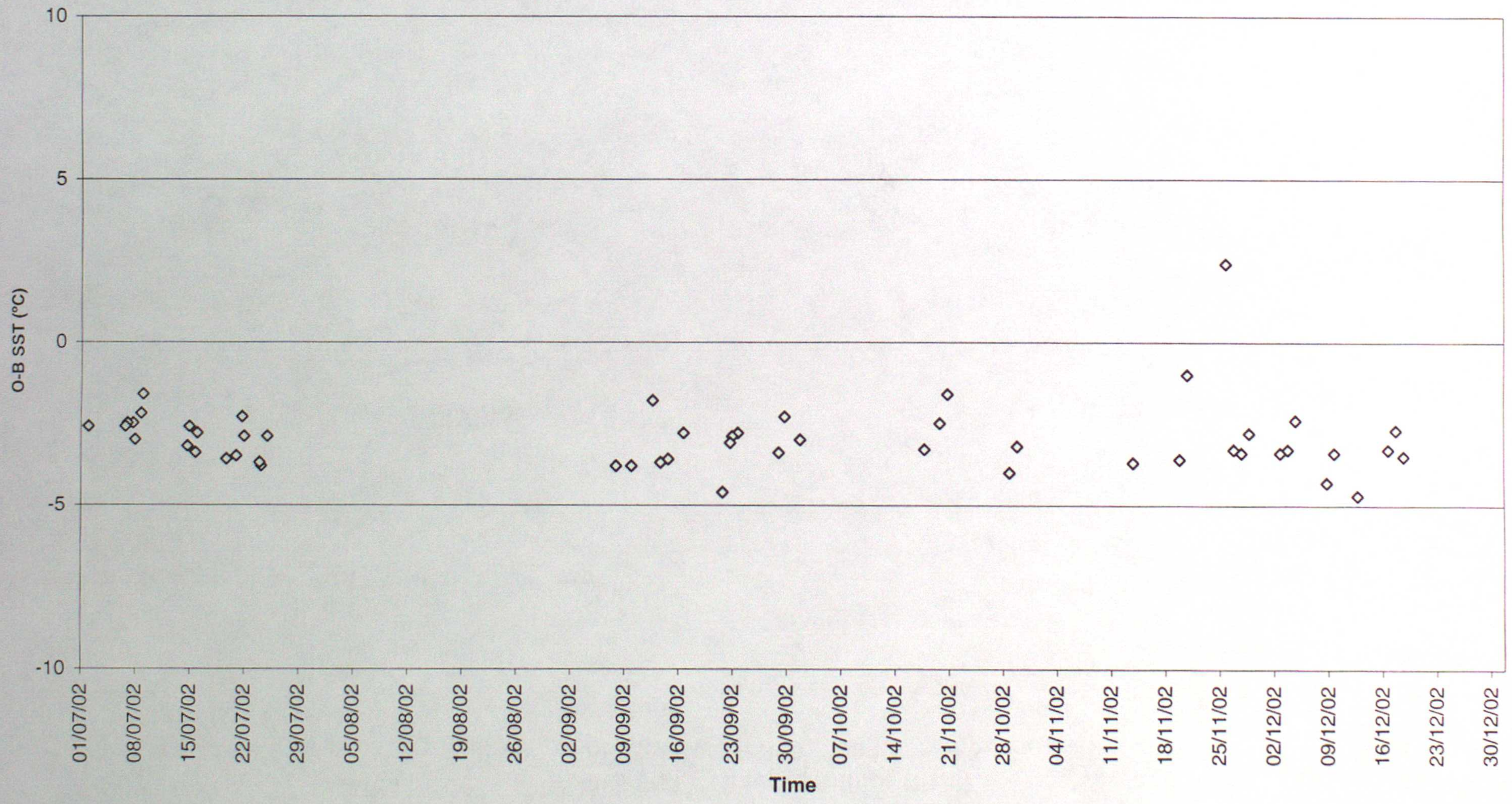


O-B SST (°C) for identifier J8JW7
Number of obs. plotted = 90   Number of outliers = 0

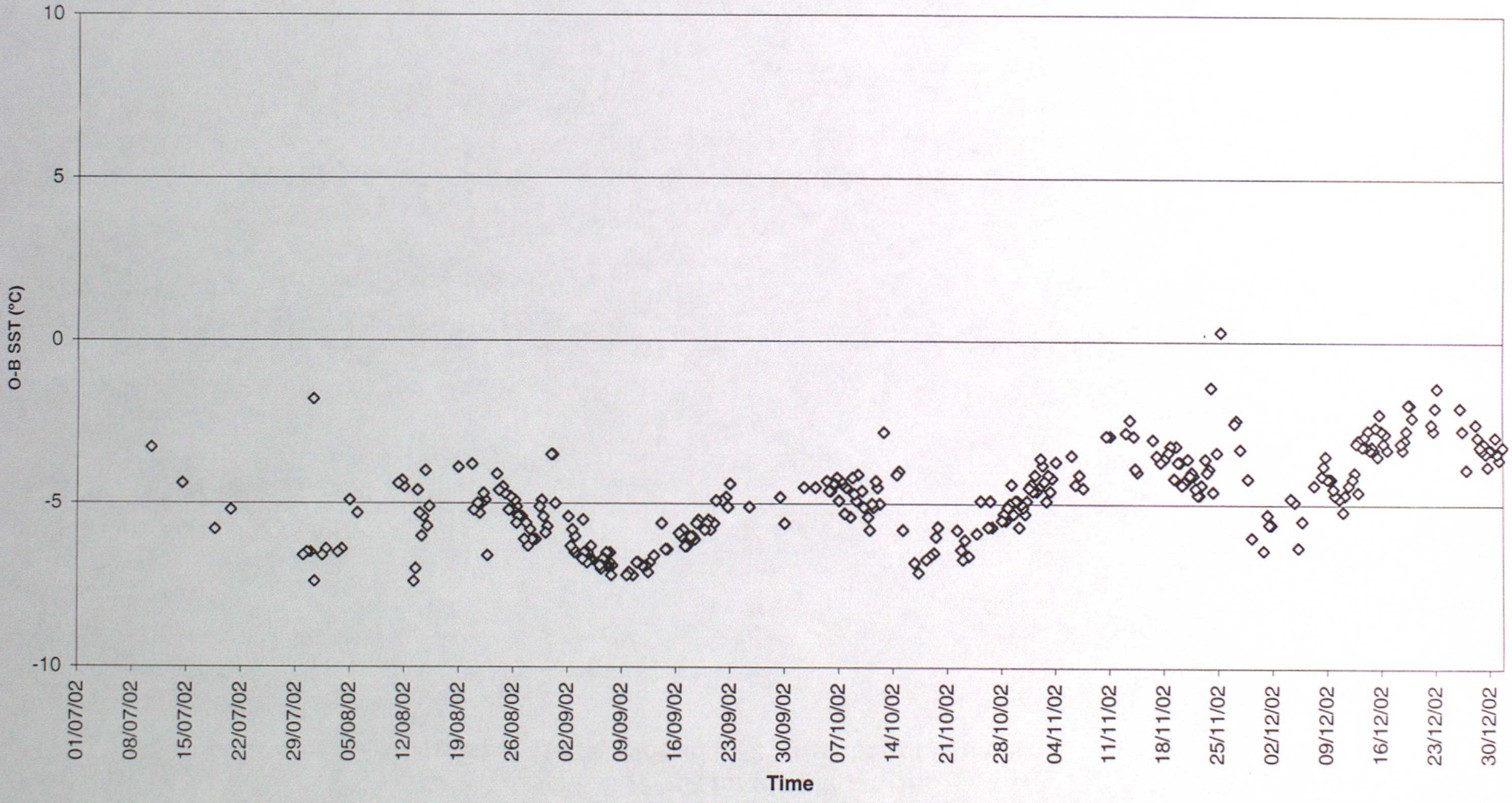
O-B SST (°C) for identifier KGJX
Number of obs. plotted = 225   Number of outliers = 2

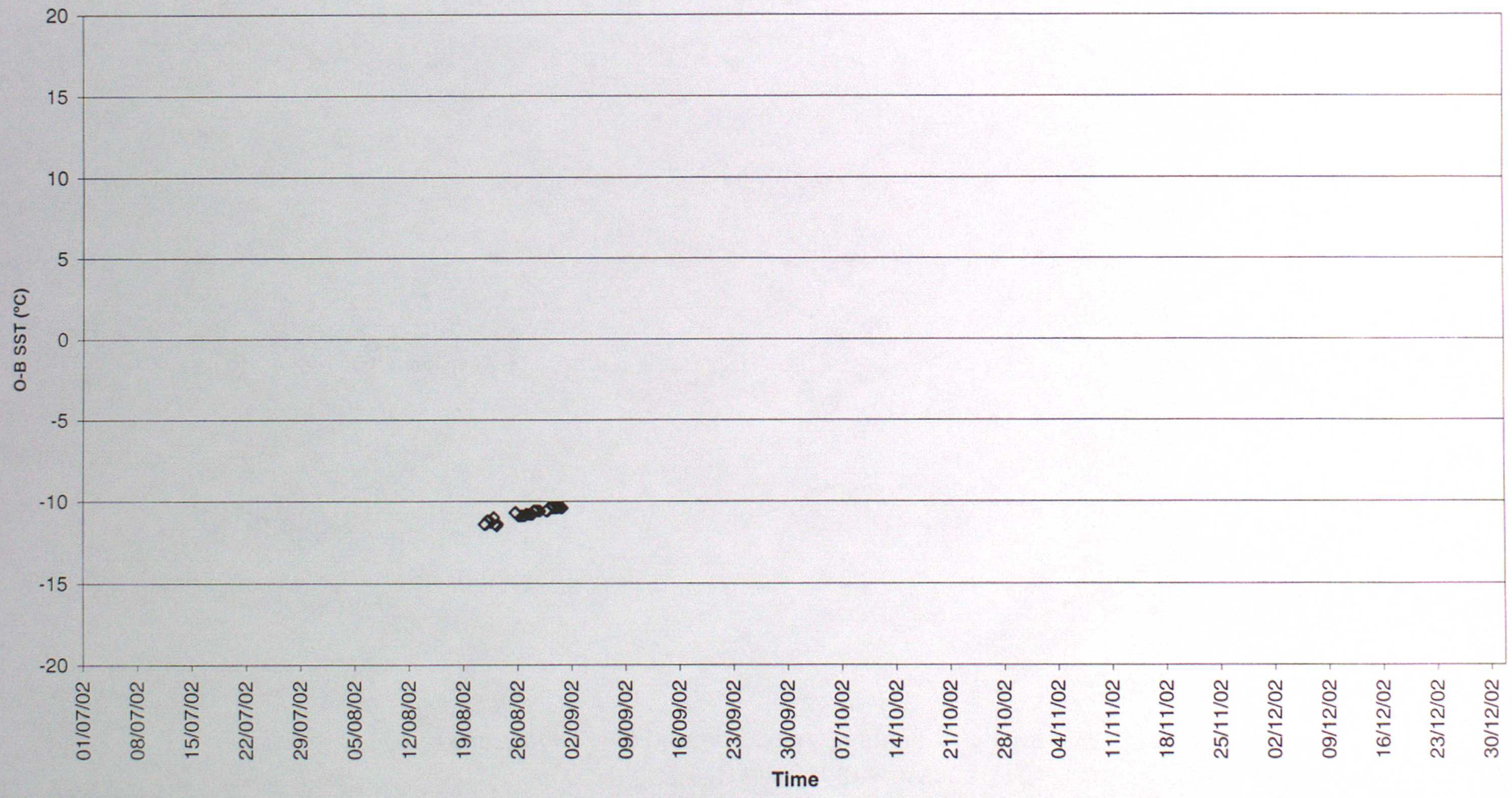


O-B SST (°C) for identifier KHRC
Number of obs. plotted = 52   Number of outliers = 0



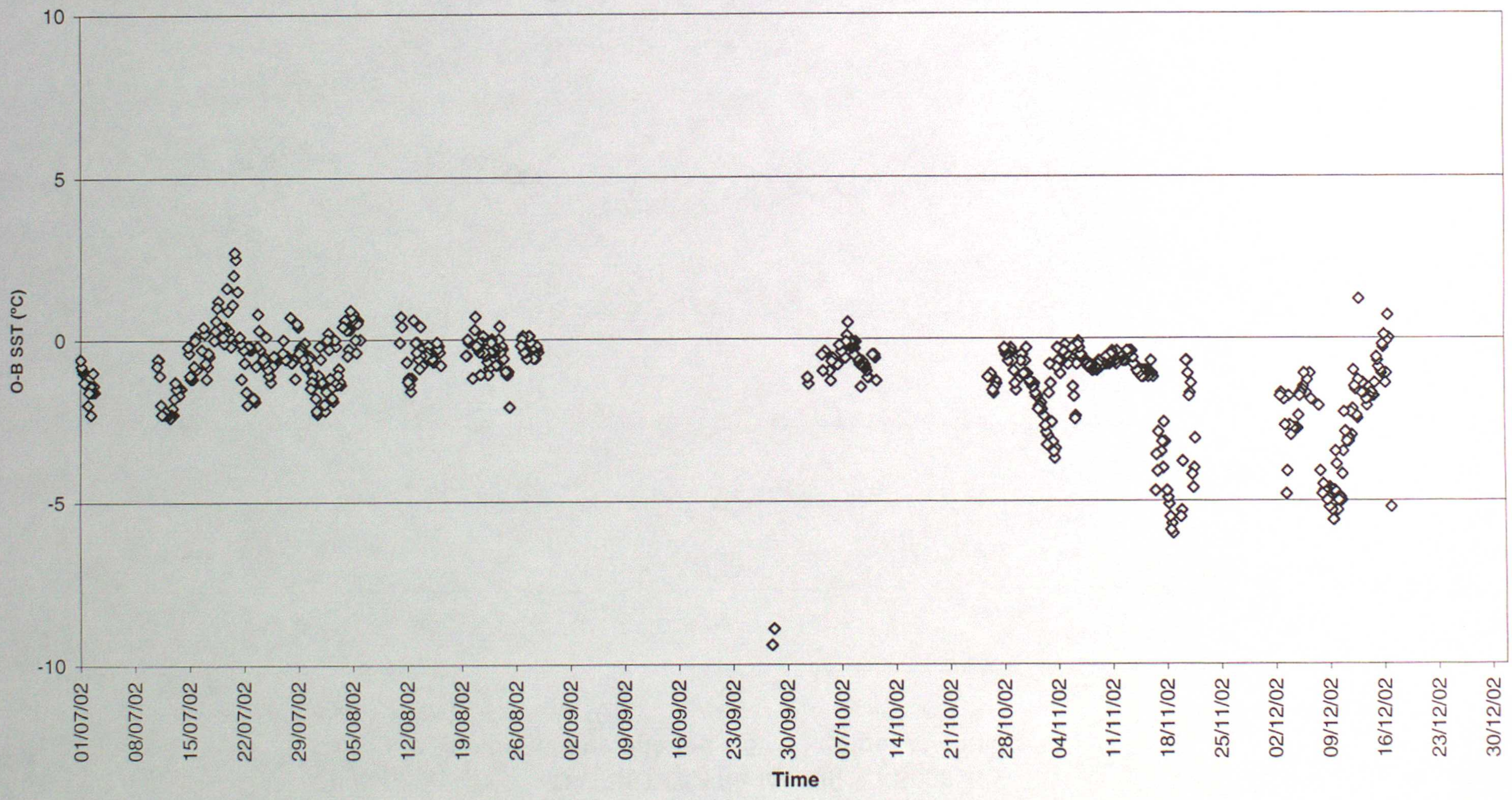
O-B SST (°C) for identifier KRPB
Number of obs. plotted = 316   Number of outliers = 0

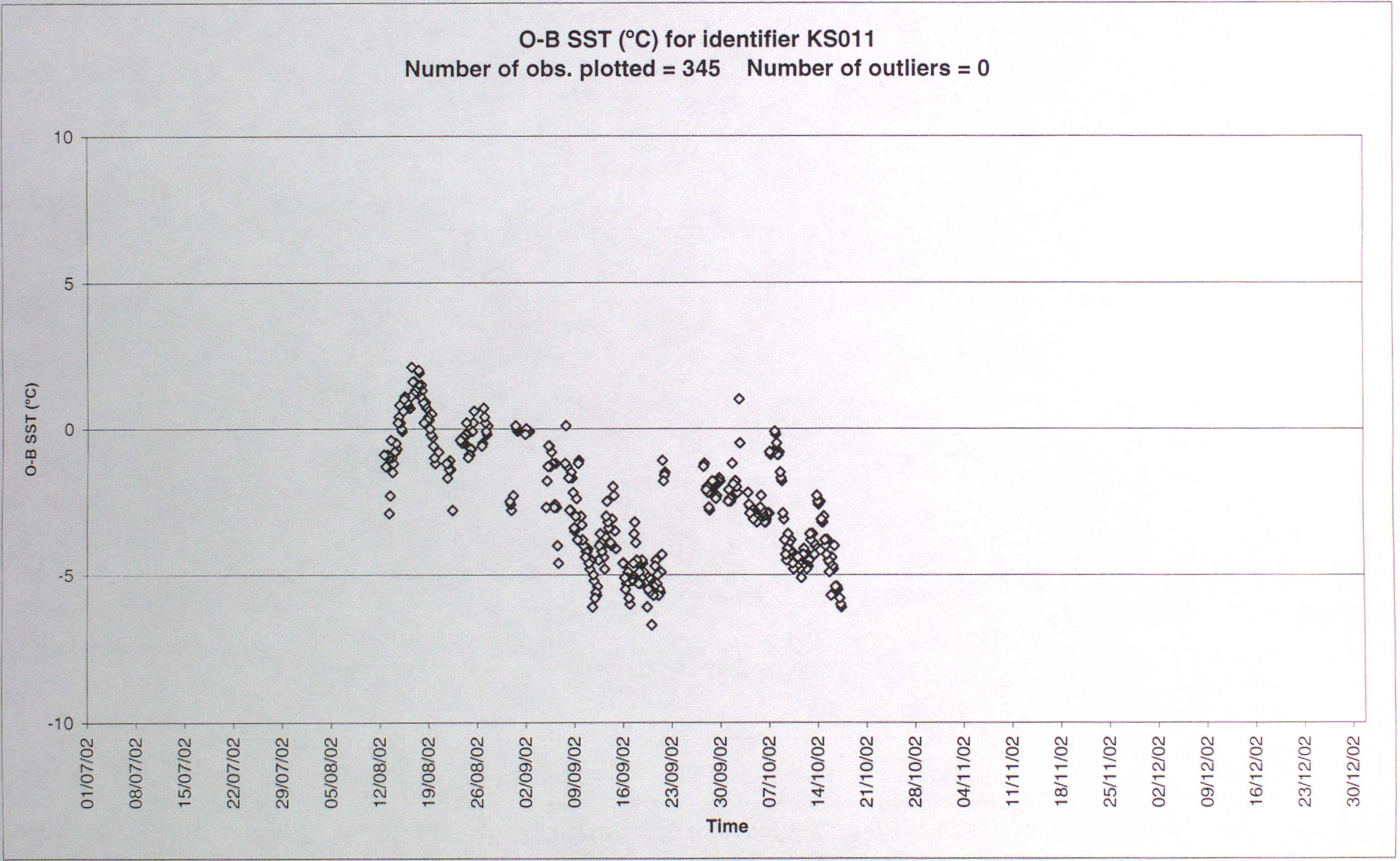


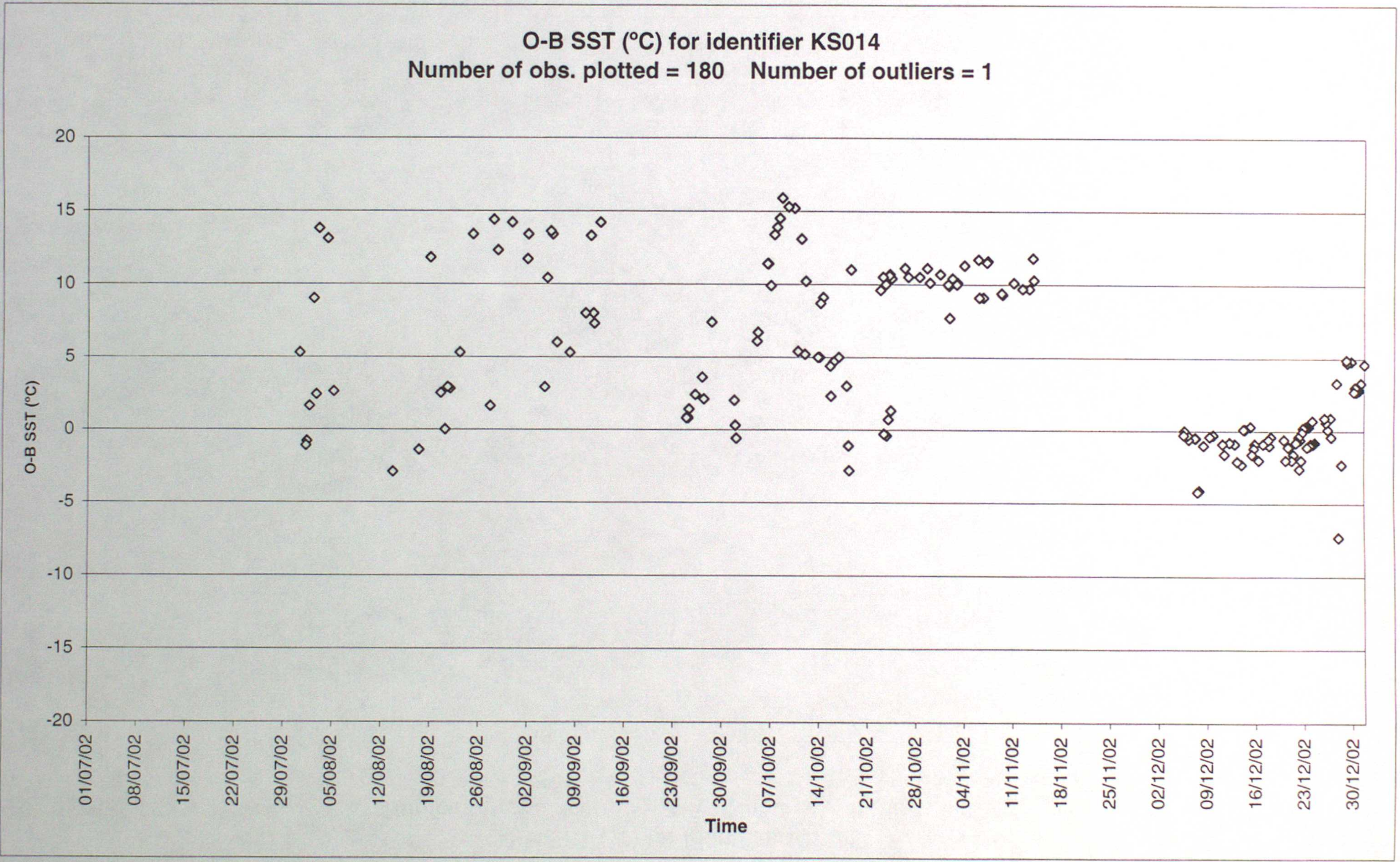


O-B SST (°C) for identifier KS003
Number of obs. plotted = 56   Number of outliers = 0

O-B SST (°C) for identifier KS005
Number of obs. plotted = 578   Number of outliers = 2

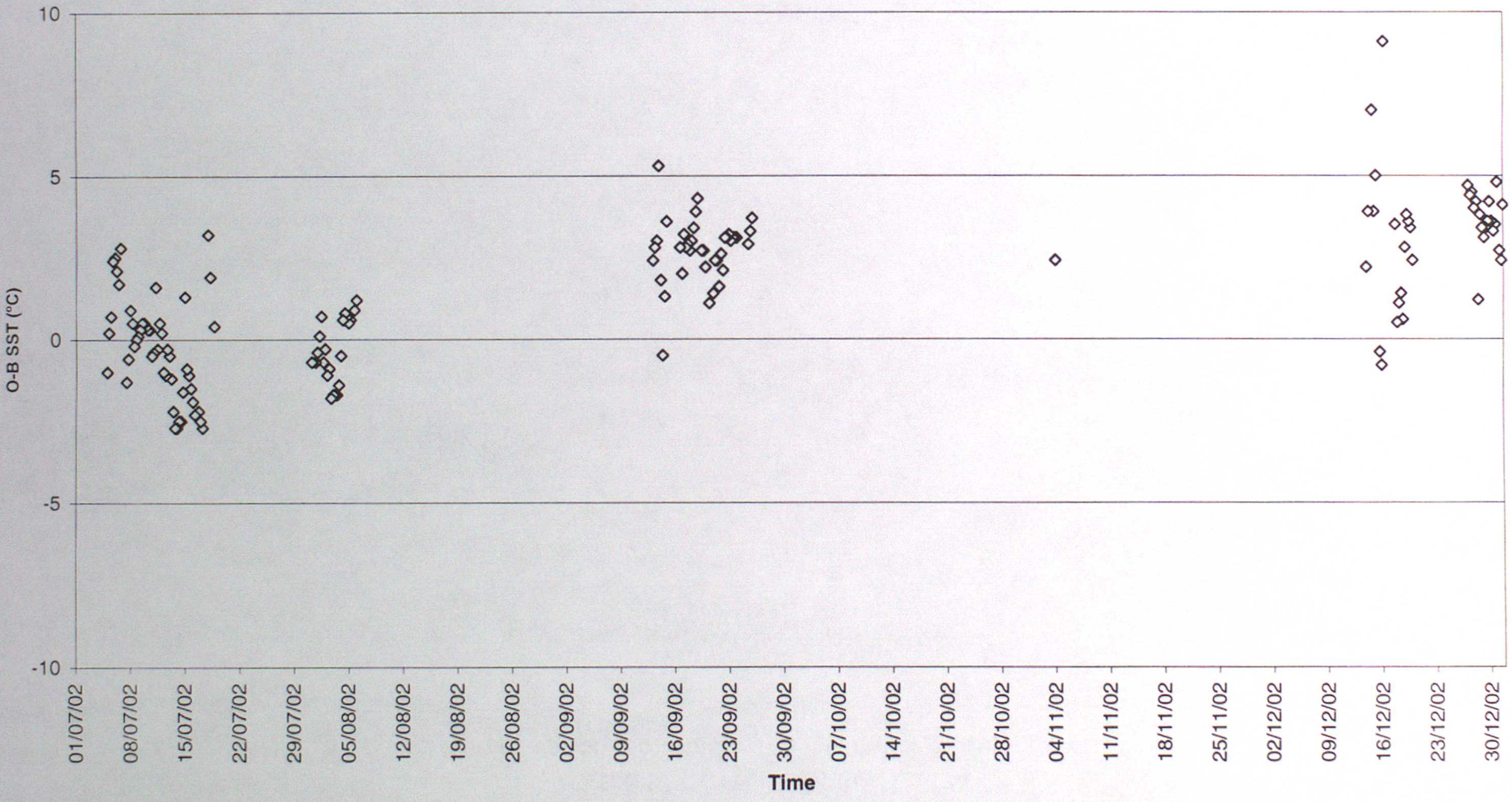



O-B SST (°C) for identifier KS011
Number of obs. plotted = 345   Number of outliers = 0
O-B SST (°C)
10
5
0
-5
-10
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

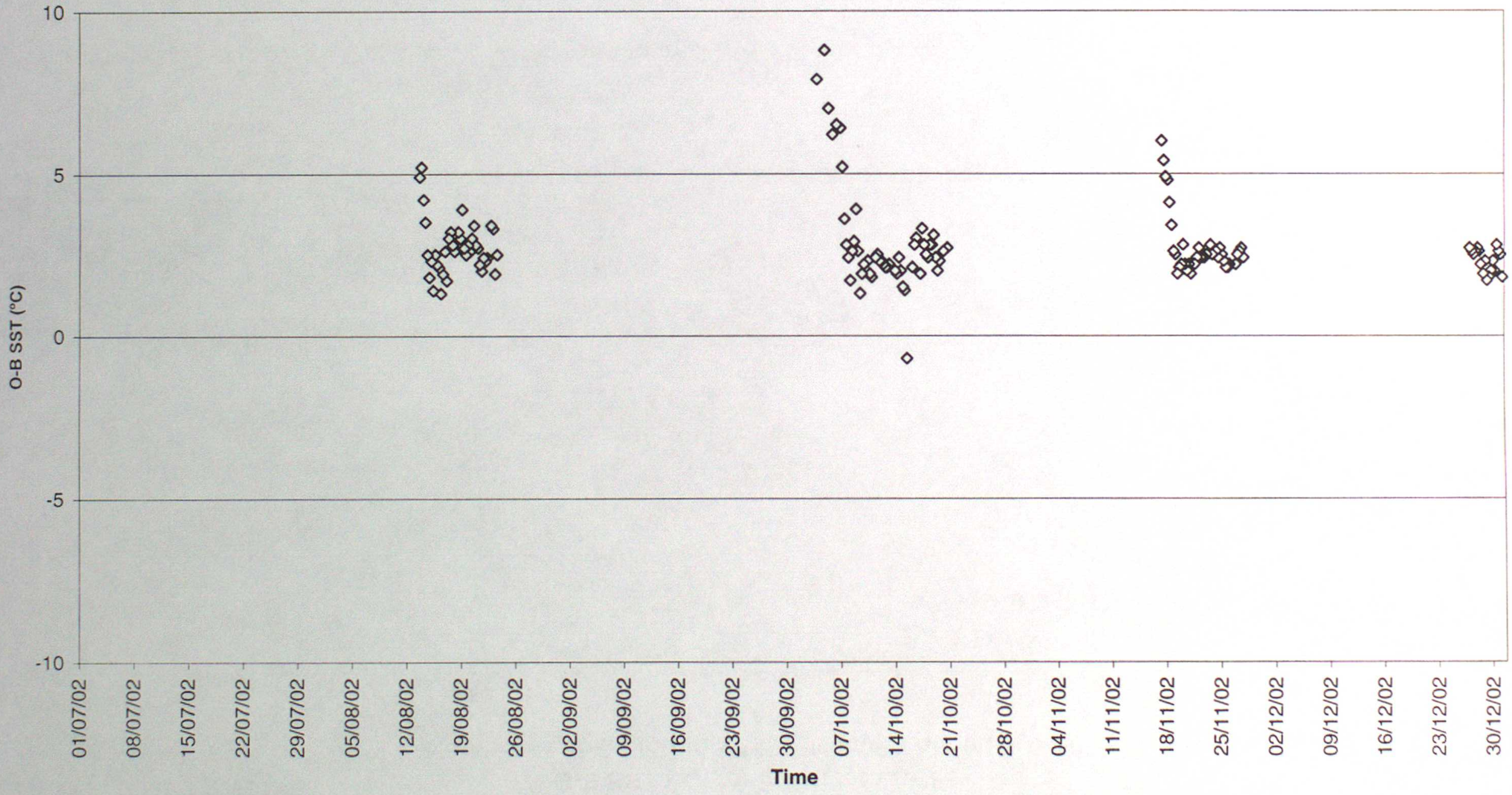


O-B SST (°C) for identifier KS014
Number of obs. plotted = 180   Number of outliers = 1

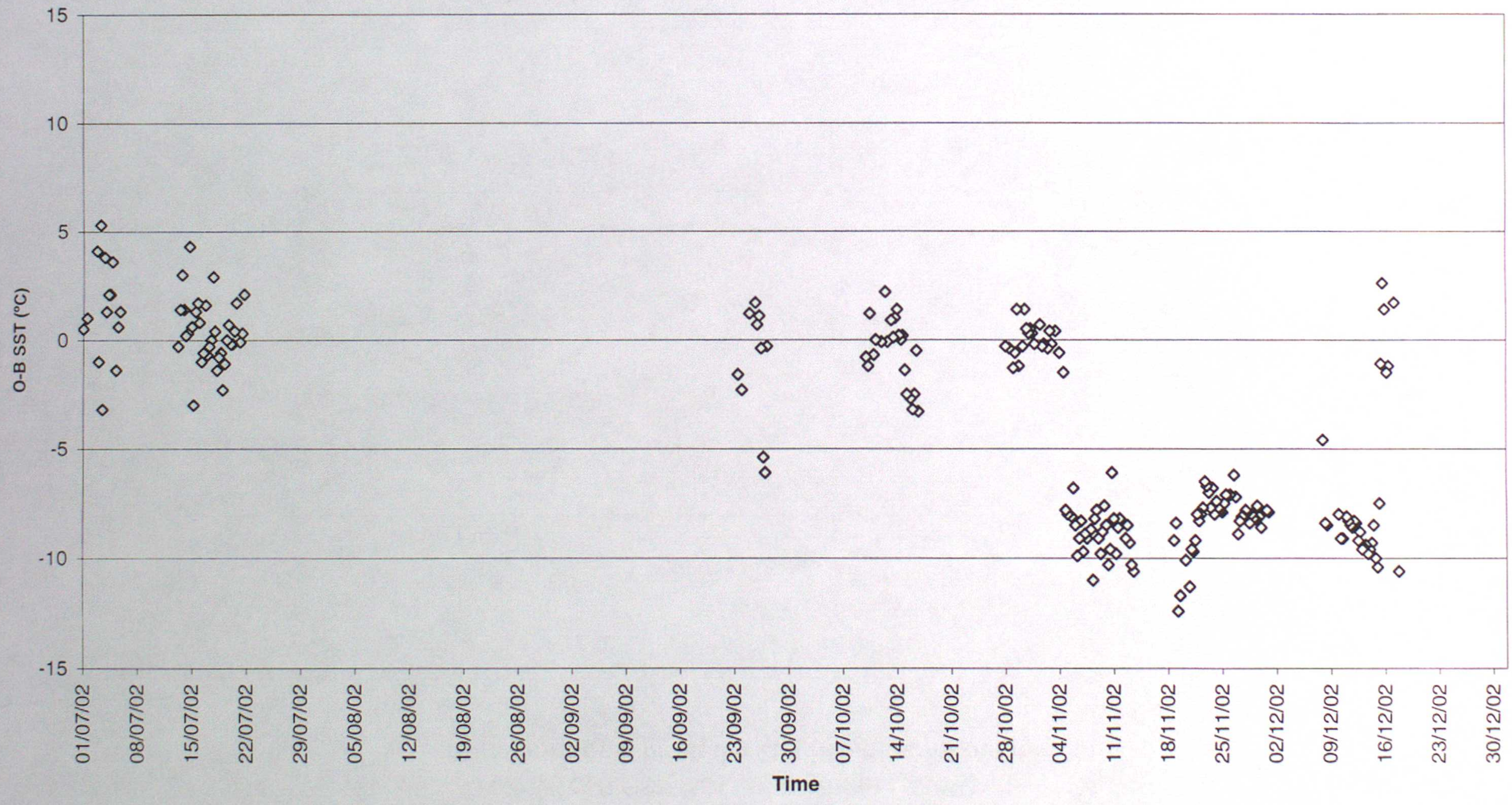
O-B SST (°C) for identifier LACF5
Number of obs. plotted = 148   Number of outliers = 0



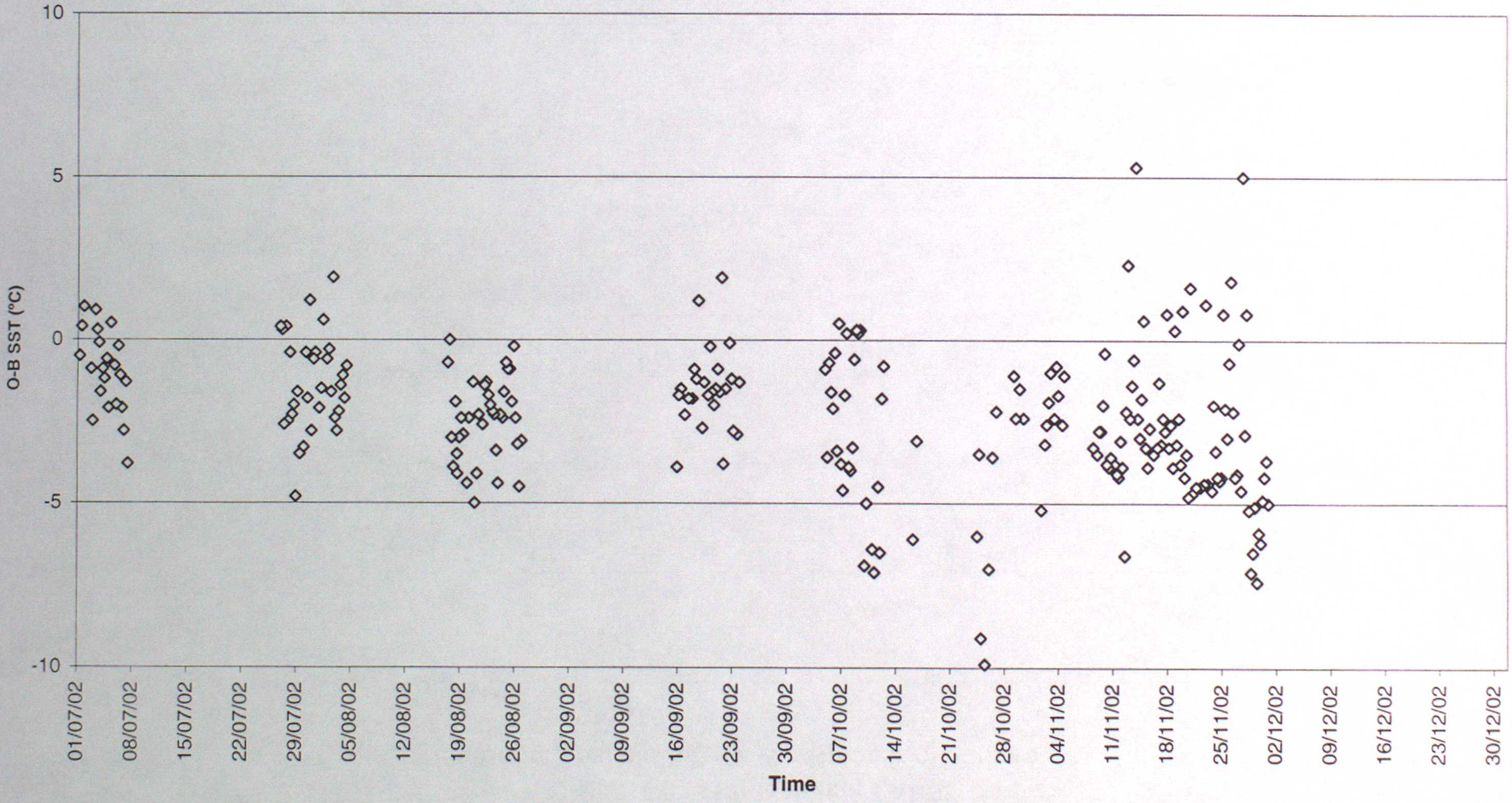
O-B SST (°C) for identifier LAJY4
Number of obs. plotted = 148   Number of outliers = 2



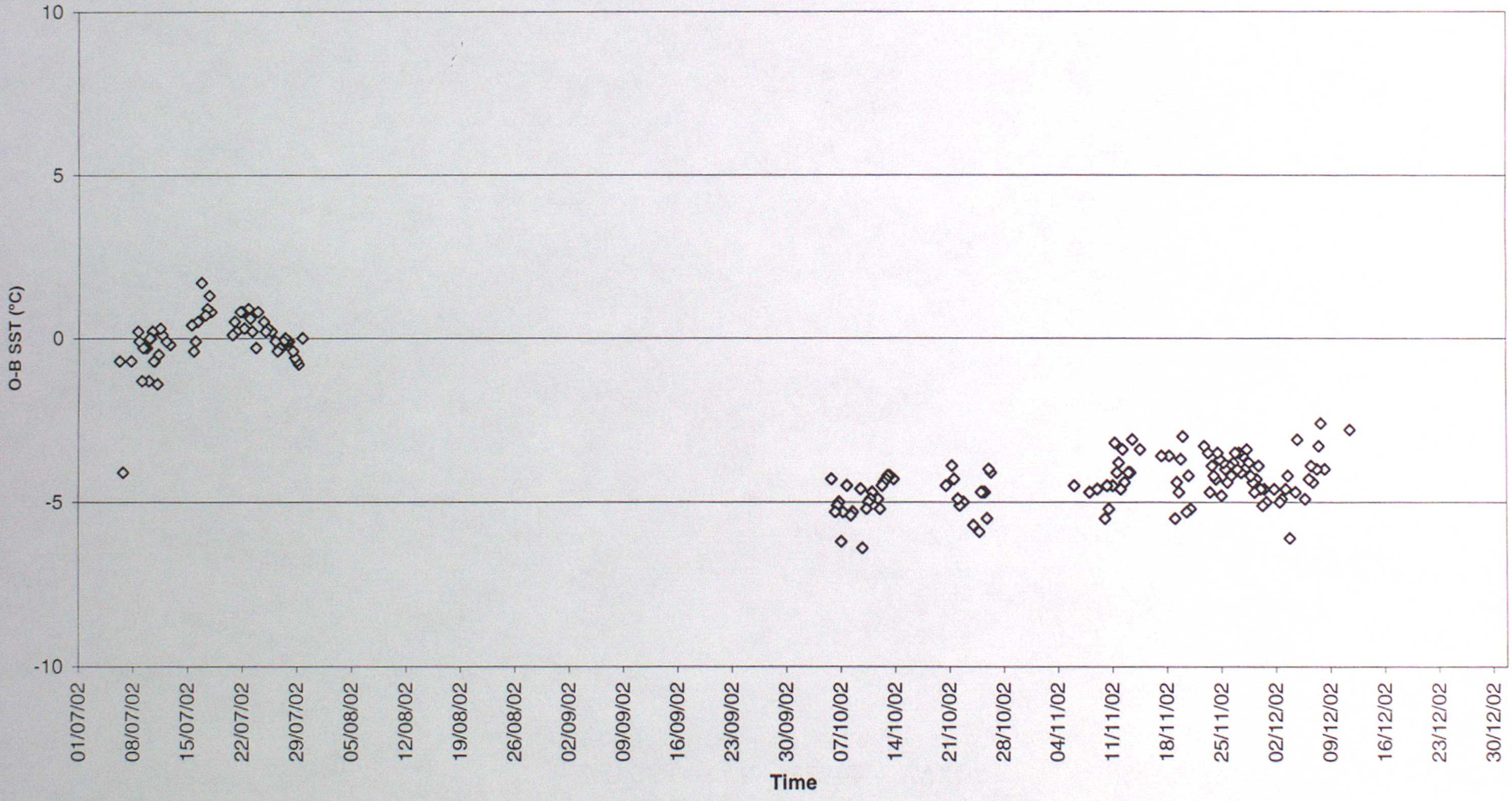
O-B SST (°C) for identifier LARS5
Number of obs. plotted = 208   Number of outliers = 1



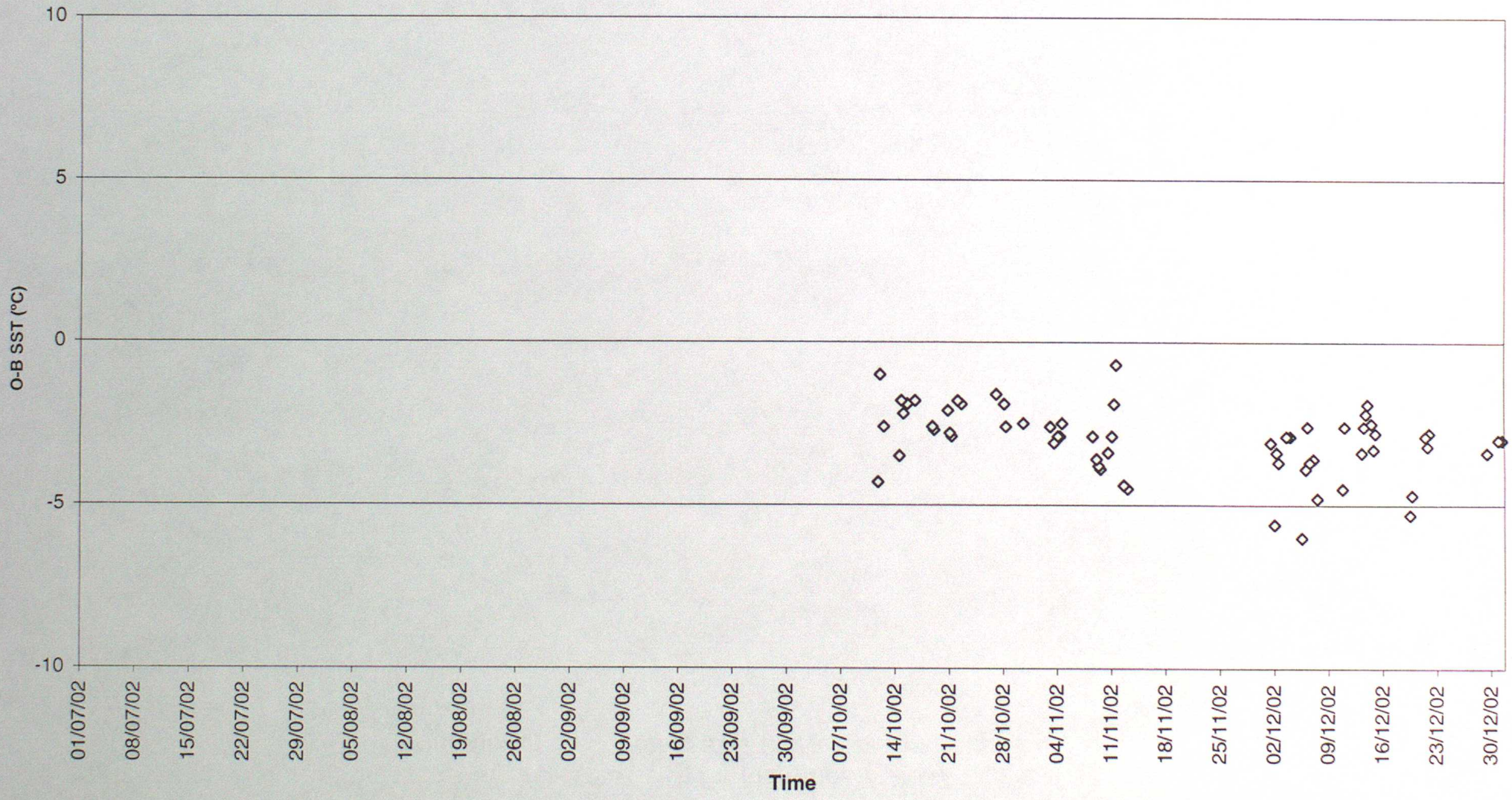
O-B SST (°C) for identifier LAVW4
Number of obs. plotted = 250   Number of outliers = 1



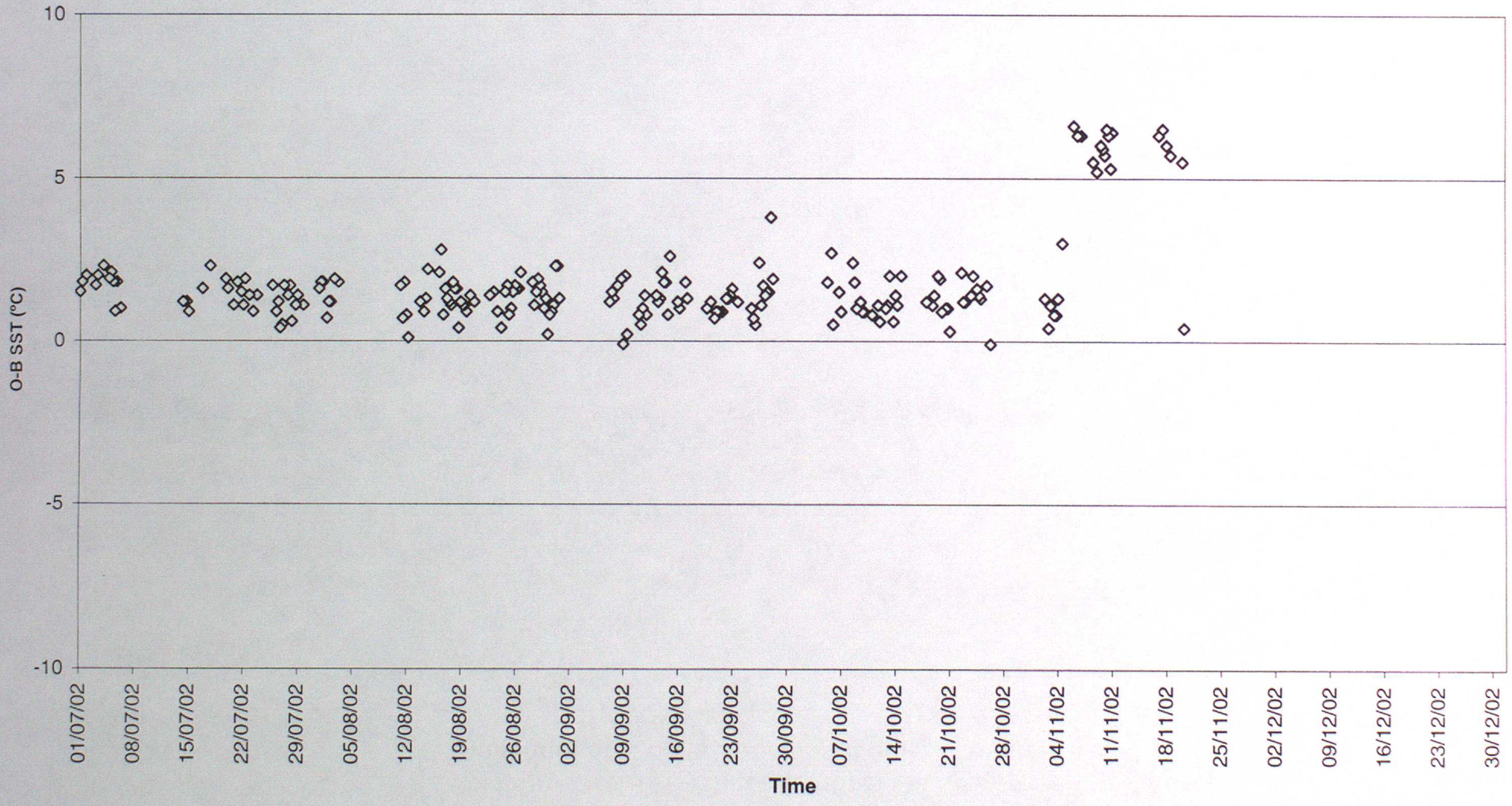
O-B SST (°C) for identifier MQKG7
Number of obs. plotted = 171   Number of outliers = 0



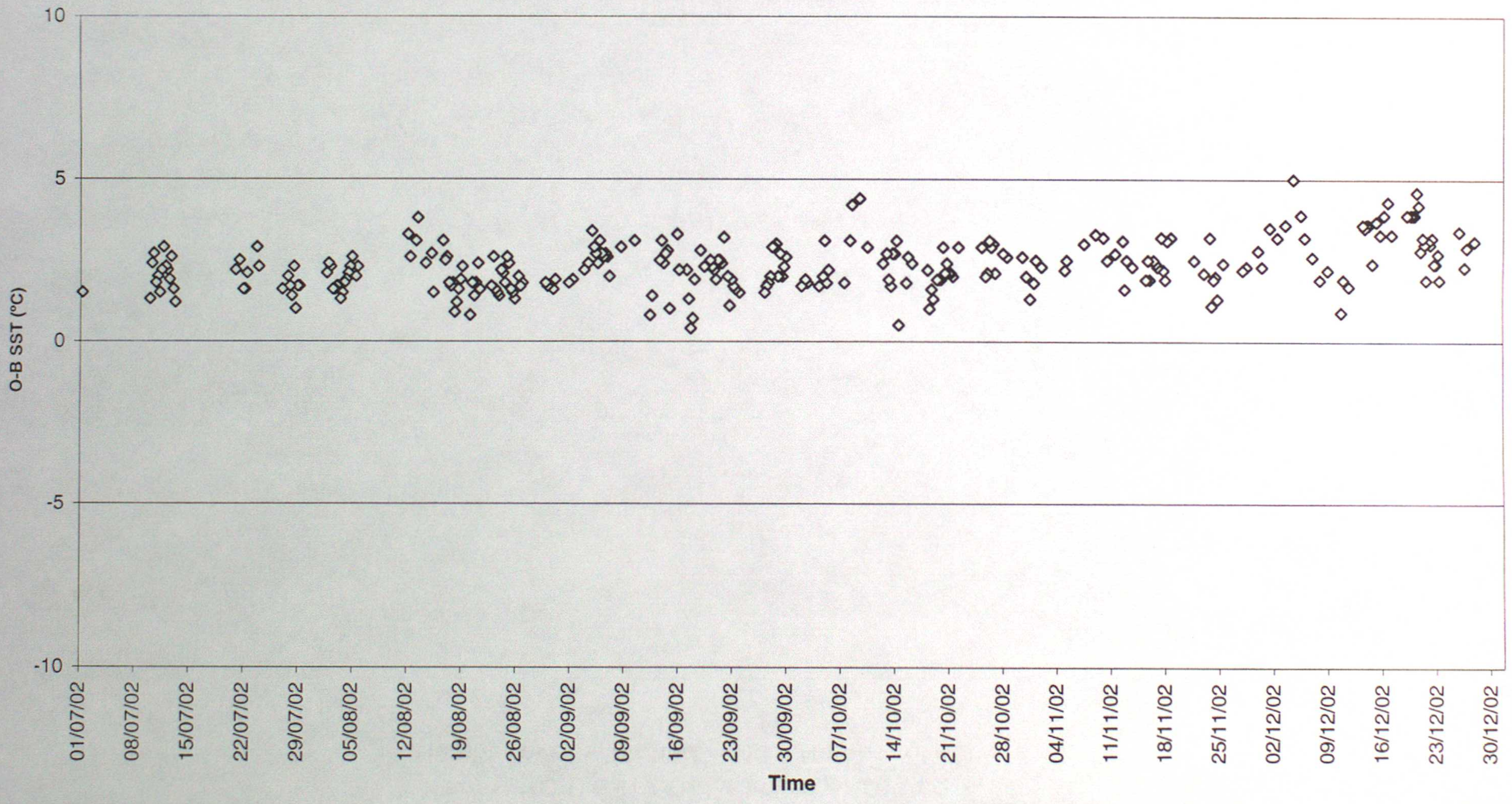
O-B SST (°C) for identifier MVXQ8
Number of obs. plotted = 63   Number of outliers = 0

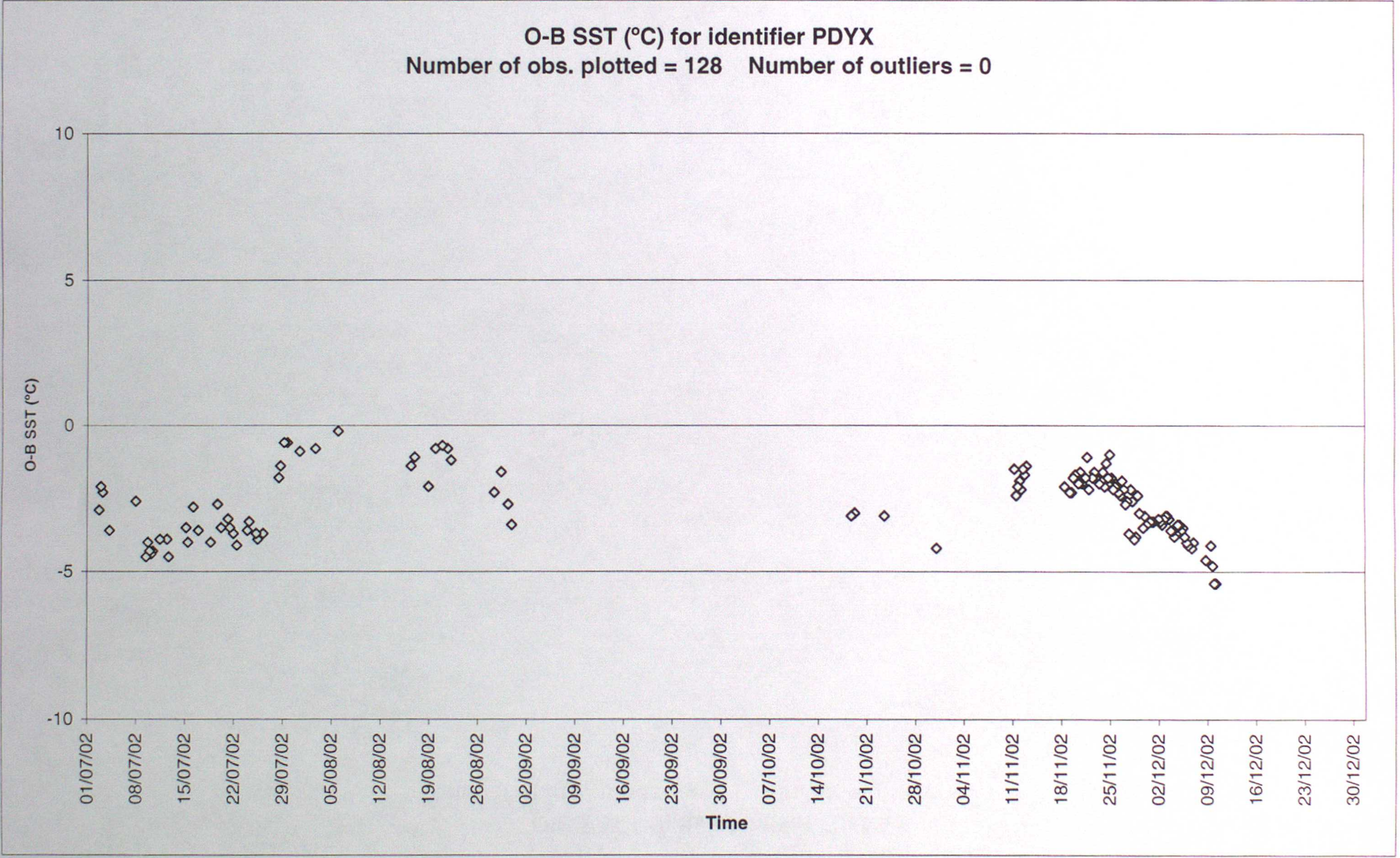


O-B SST (ºC) for identifier OYVQ2
Number of obs. plotted = 213   Number of outliers = 2



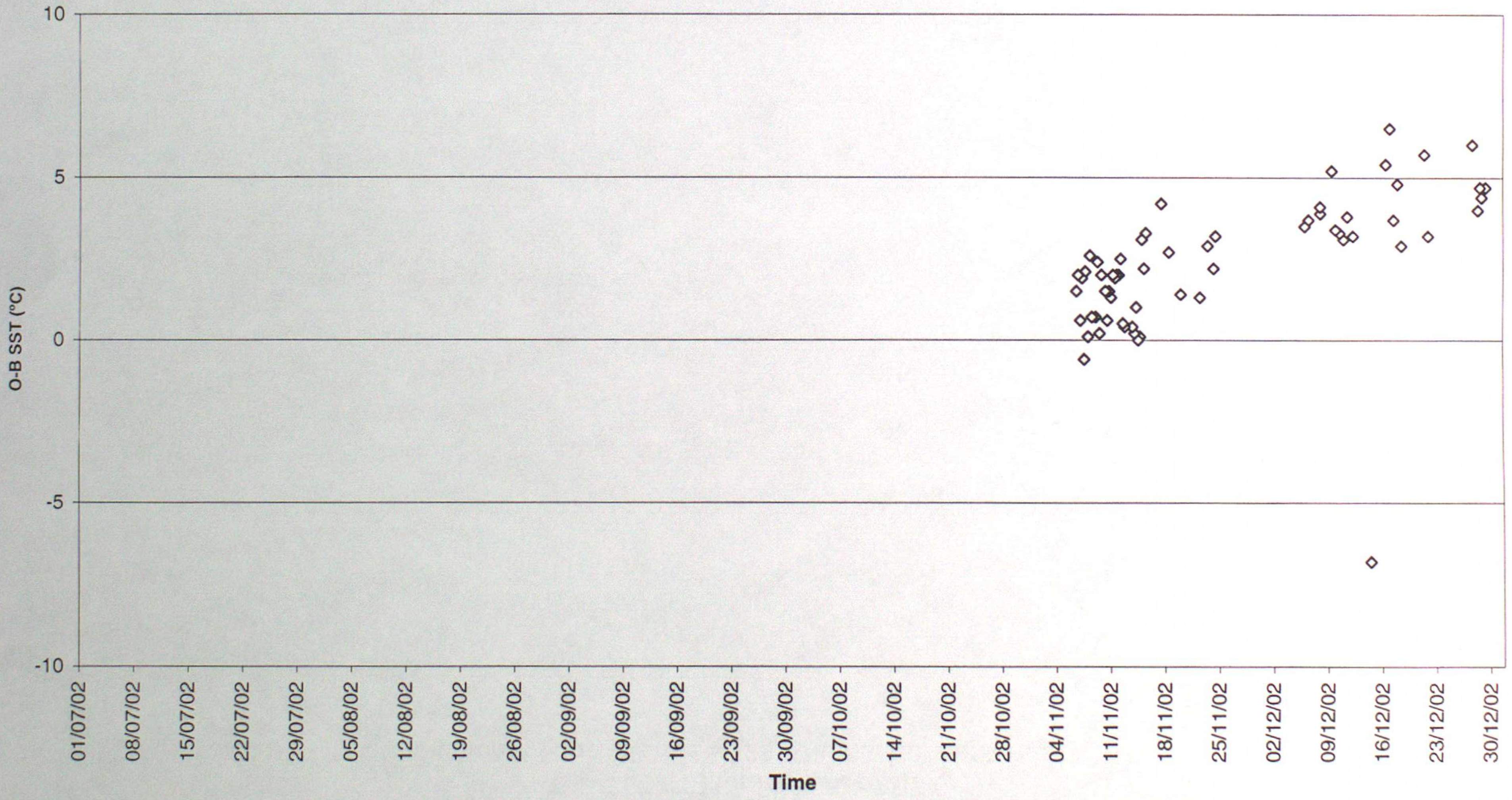
O-B SST (°C) for identifier OZWP2
Number of obs. plotted = 279   Number of outliers = 1



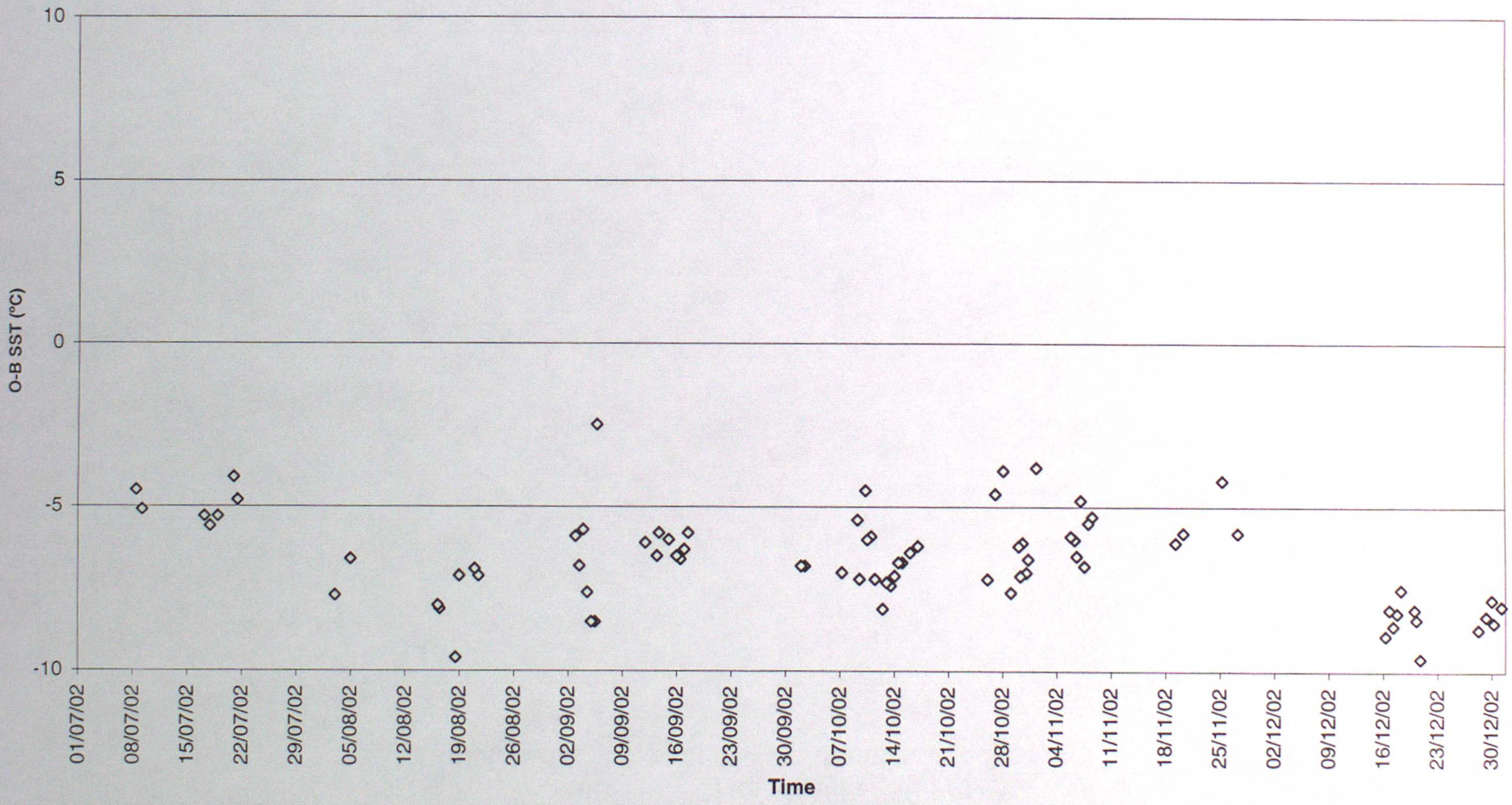

O-B SST (°C) for identifier PDYX
Number of obs. plotted = 128 Number of outliers = 0
O-B SST (°C)
10
5
0
-5
-10
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

O-B SST (°C) for identifier P3FN9

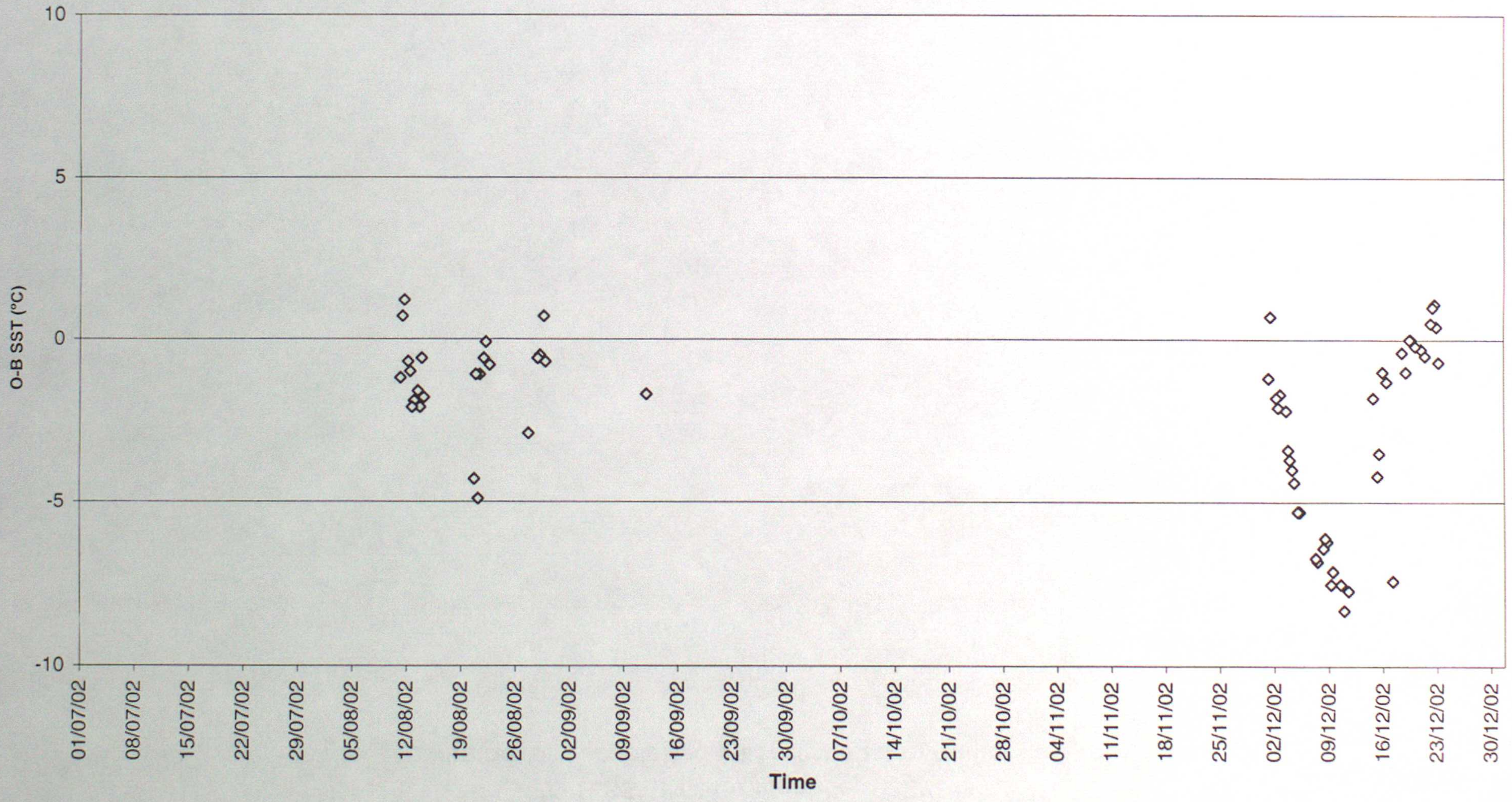
Number of obs. plotted = 64   Number of outliers = 1

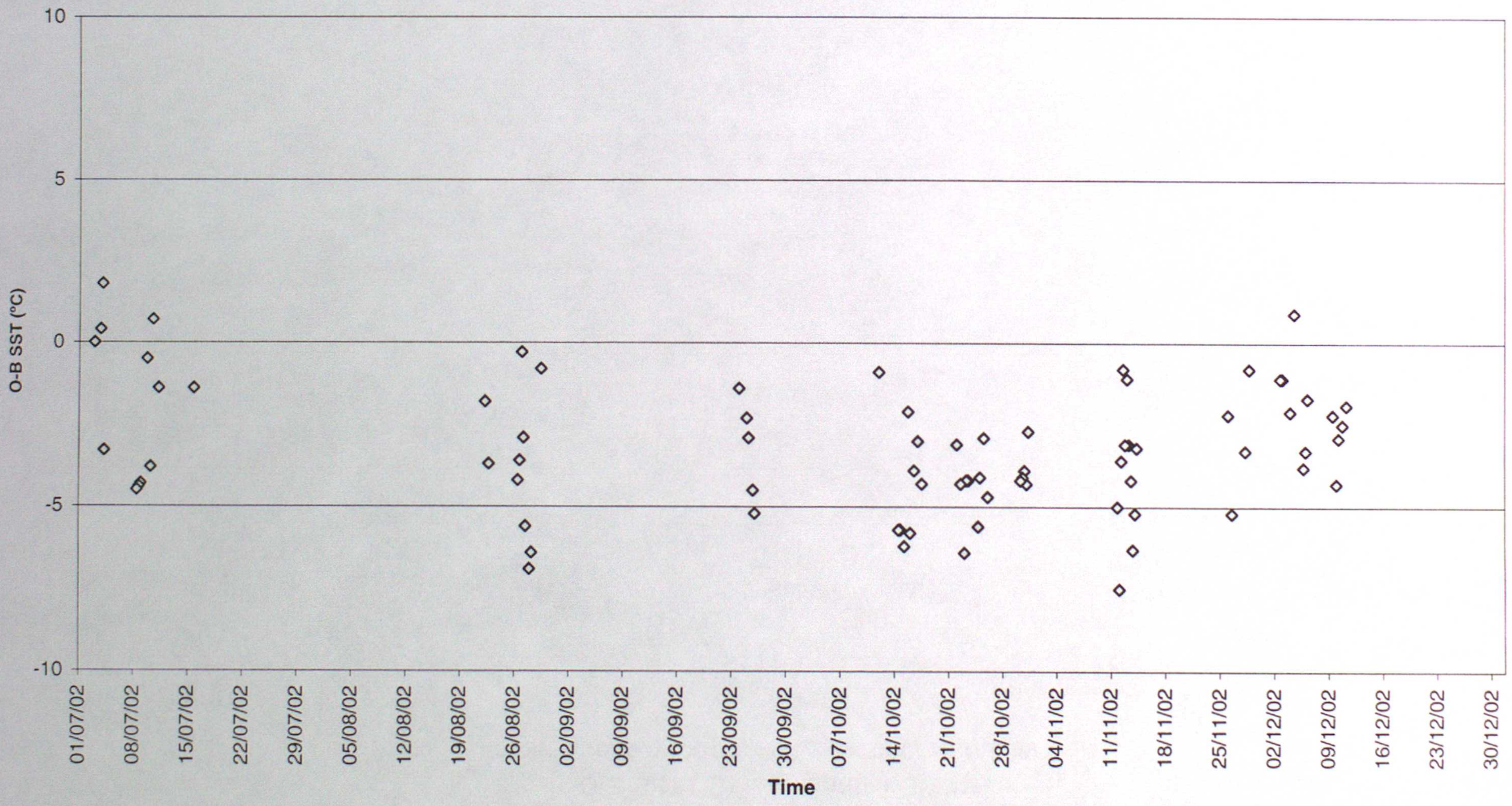


O-B SST (°C) for identifier P3ZY6
Number of obs. plotted = 81   Number of outliers = 2



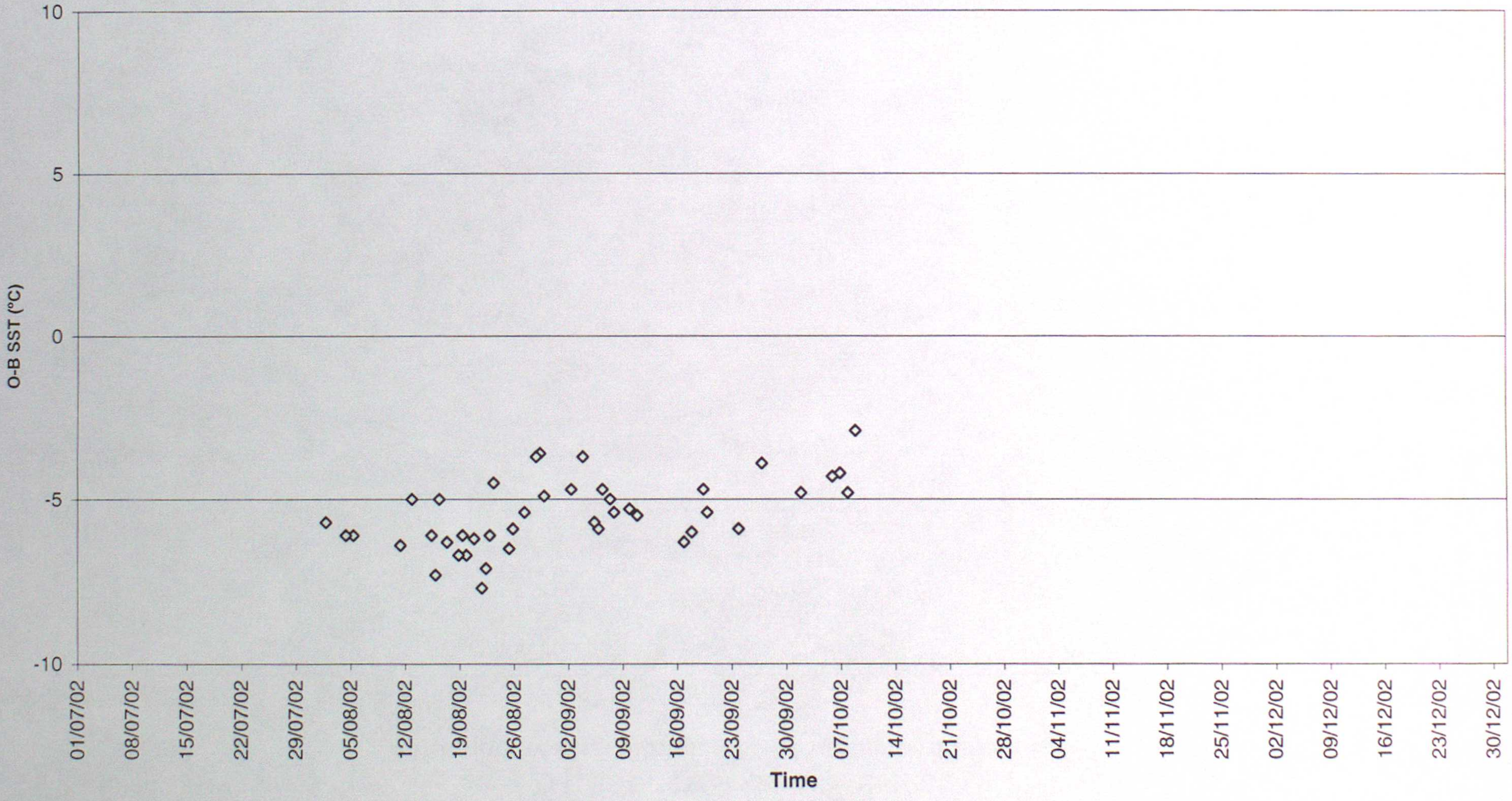
O-B SST (°C) for identifier SHIPAO
Number of obs. plotted = 64   Number of outliers = 7



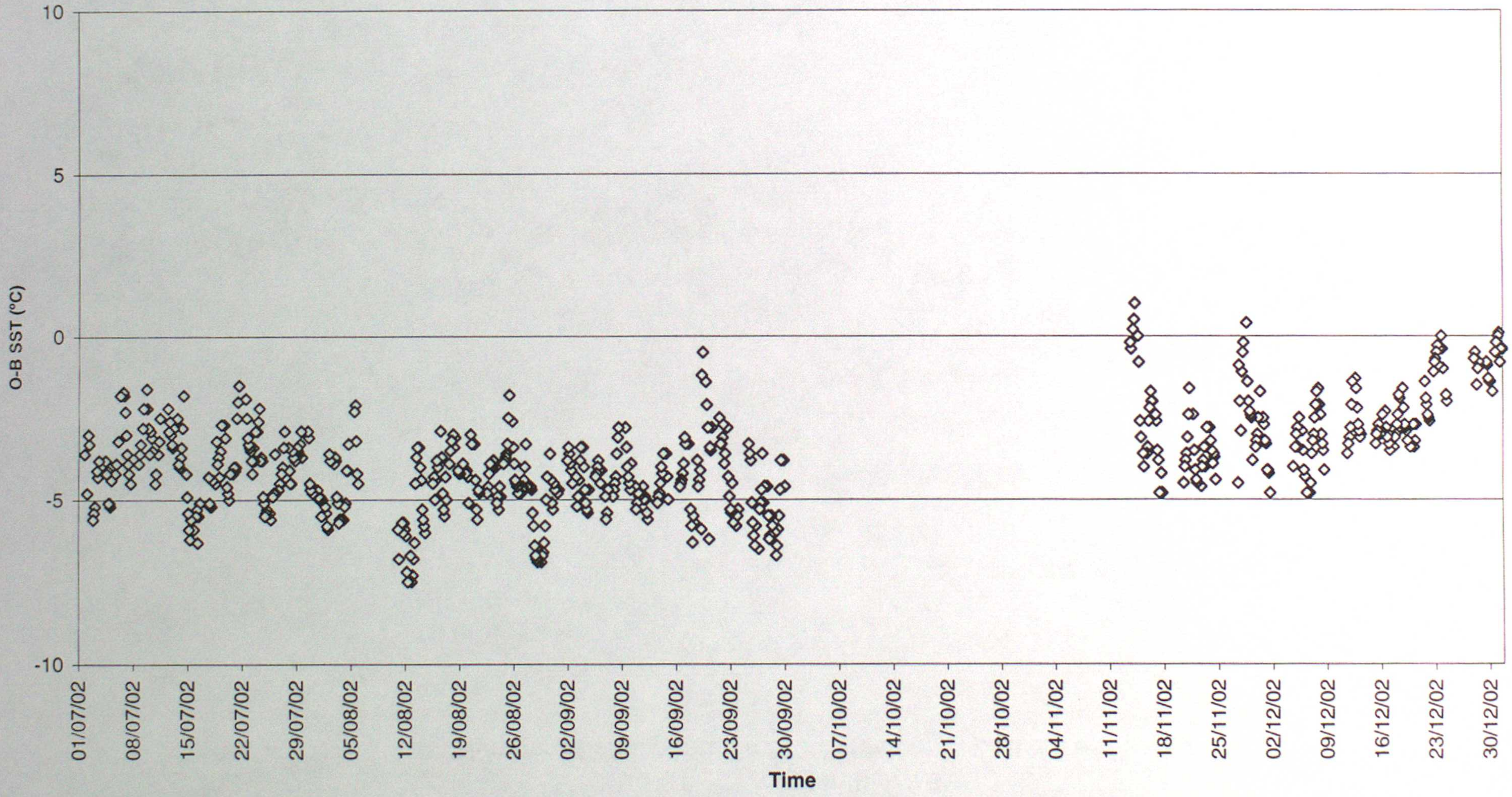


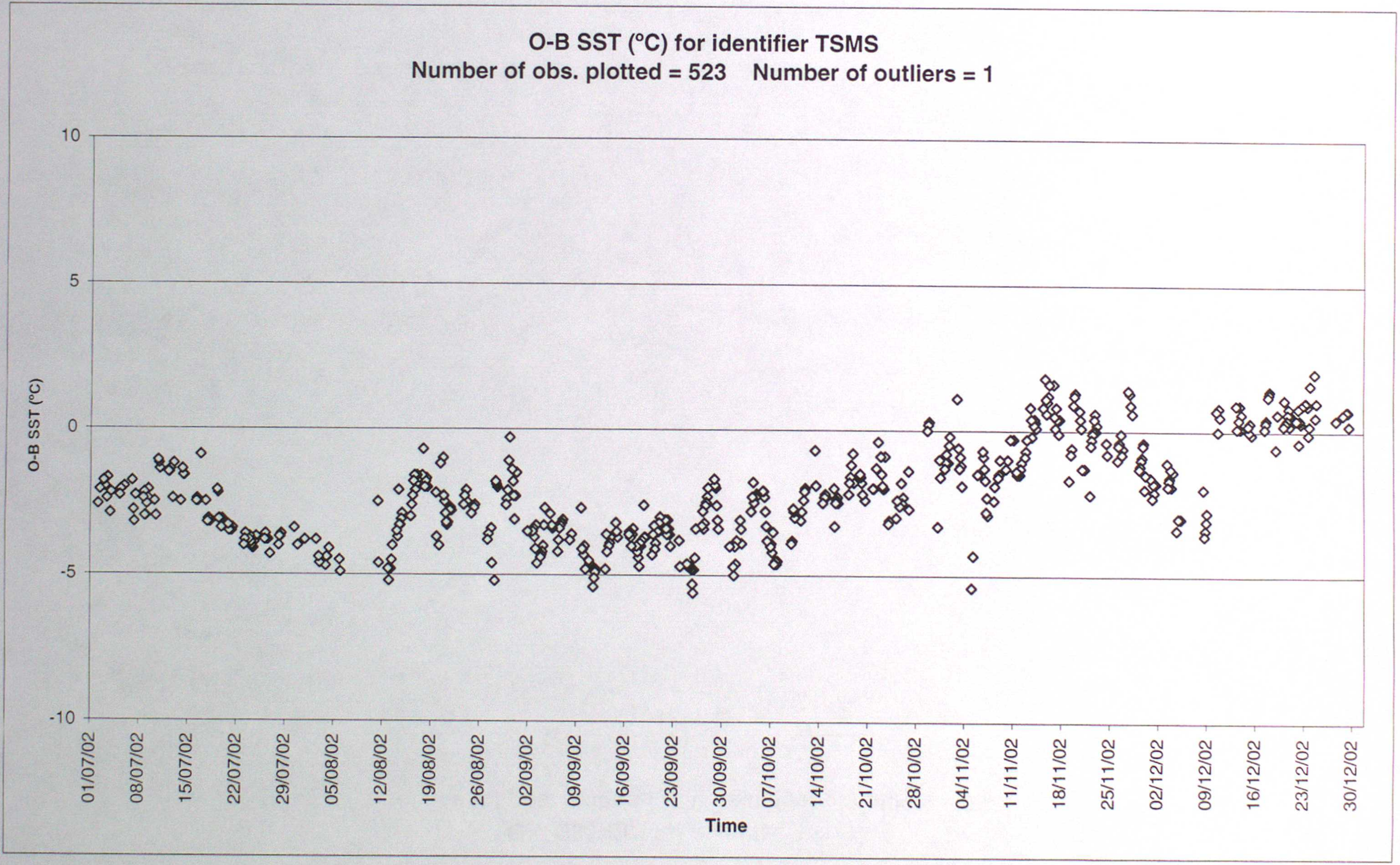
O-B SST (°C) for identifier SHIPBL
Number of obs. plotted = 77   Number of outliers = 1

O-B SST (°C) for identifier SWYM
Number of obs. plotted = 43   Number of outliers = 1

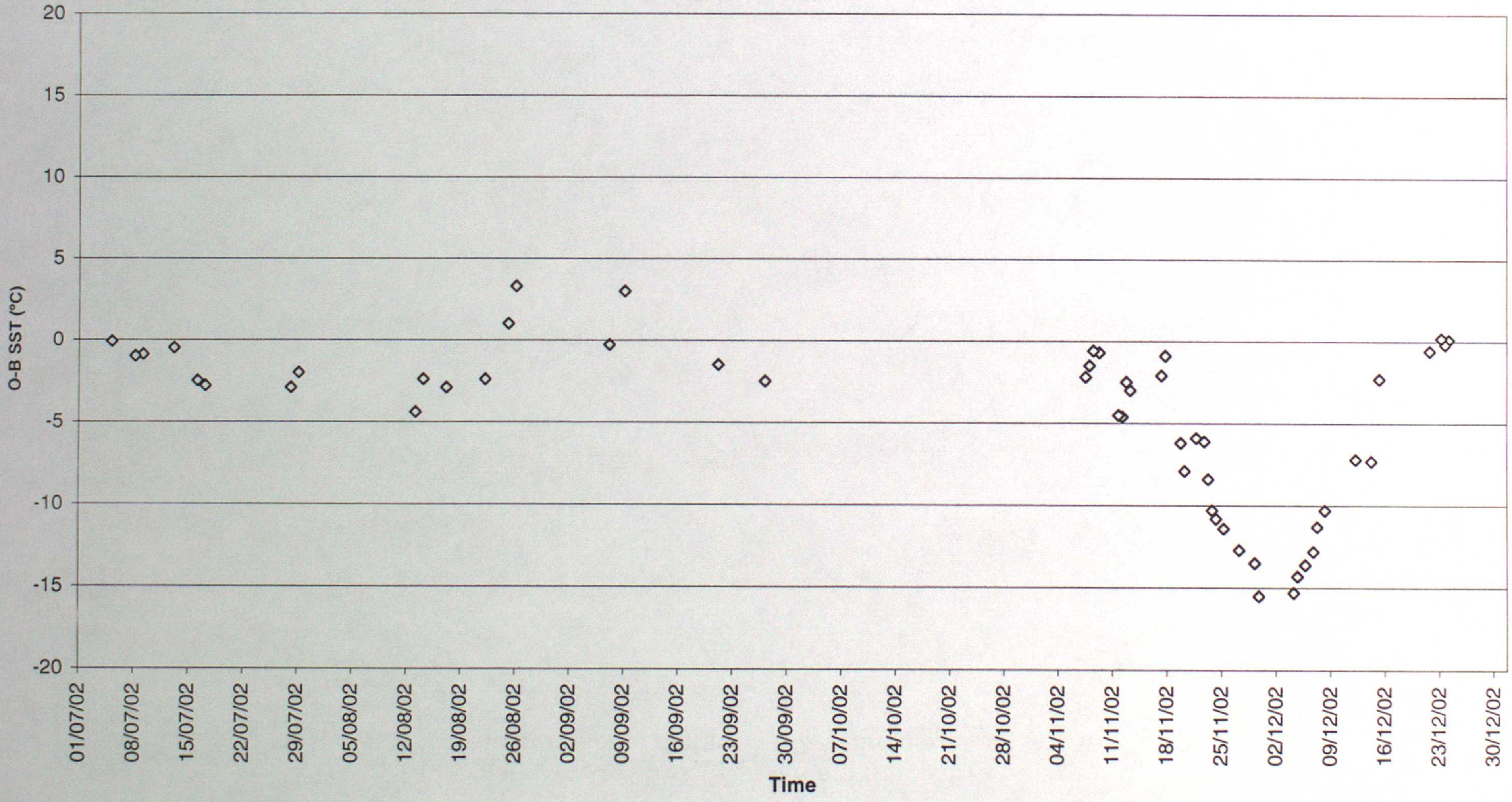


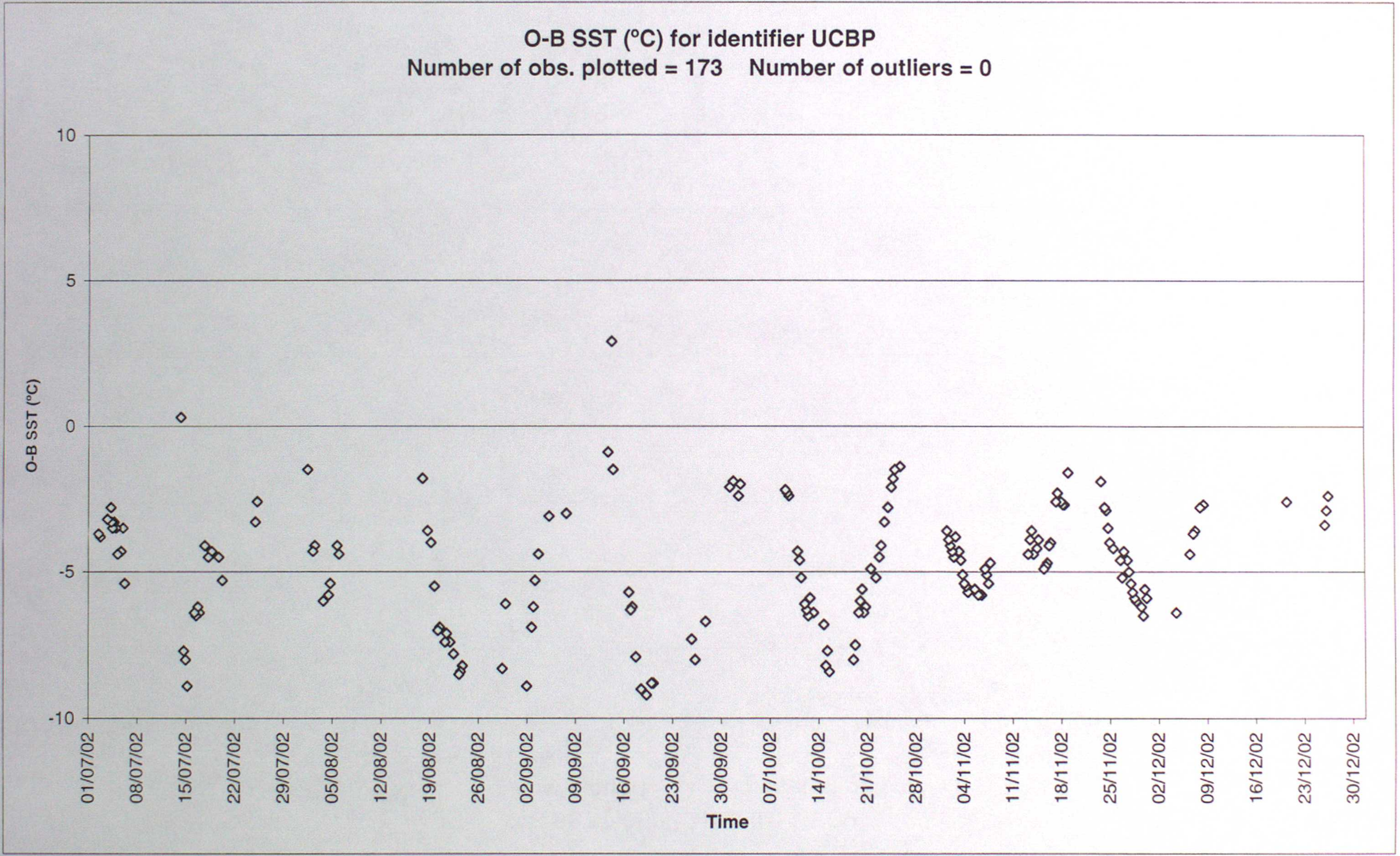
O-B SST (°C) for identifier TSLN
Number of obs. plotted = 630   Number of outliers = 0




O-B SST (°C) for identifier TSMS
Number of obs. plotted = 523   Number of outliers = 1

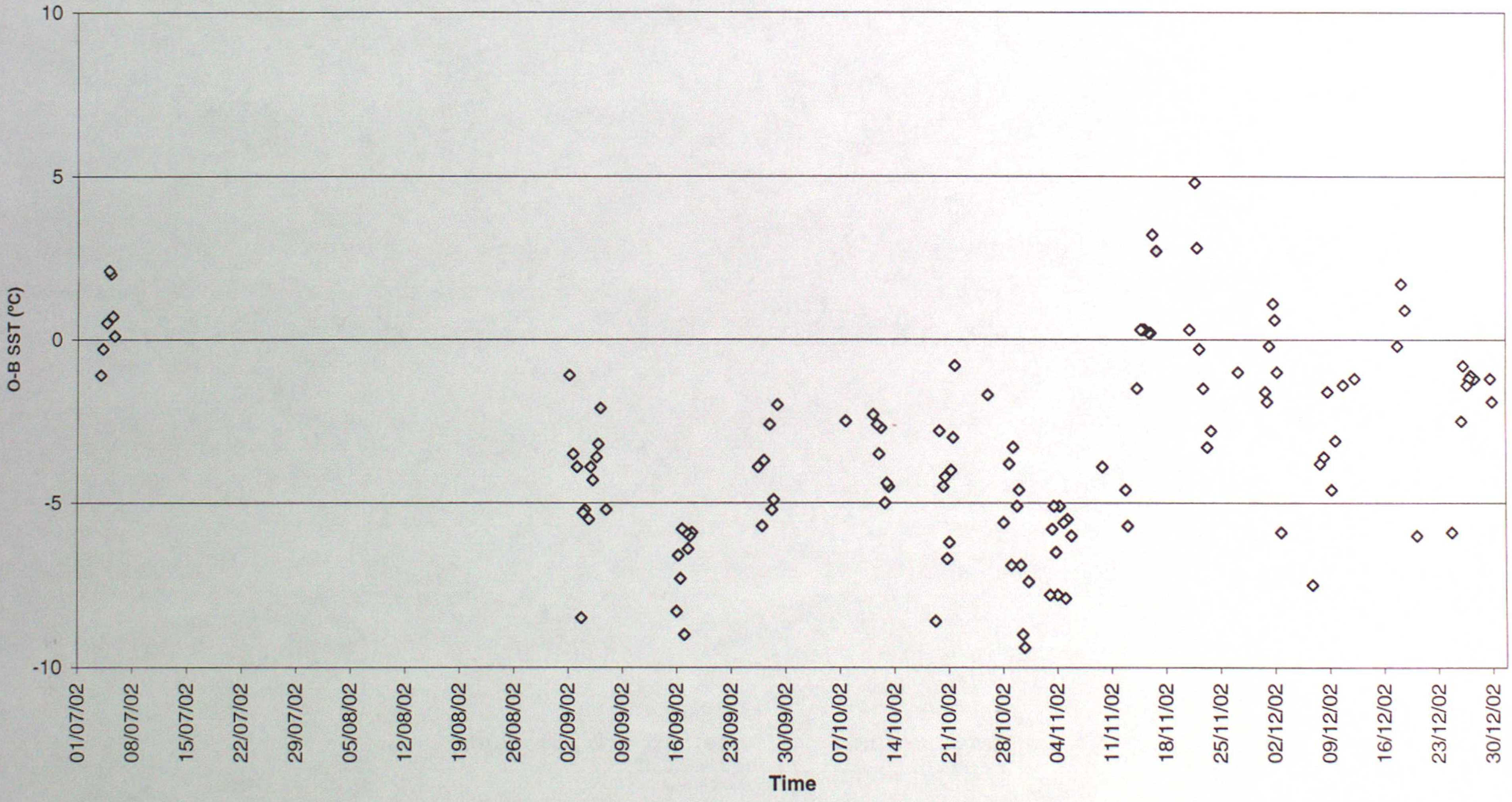
O-B SST (°C) for identifier UBDP
Number of obs. plotted = 52   Number of outliers = 0

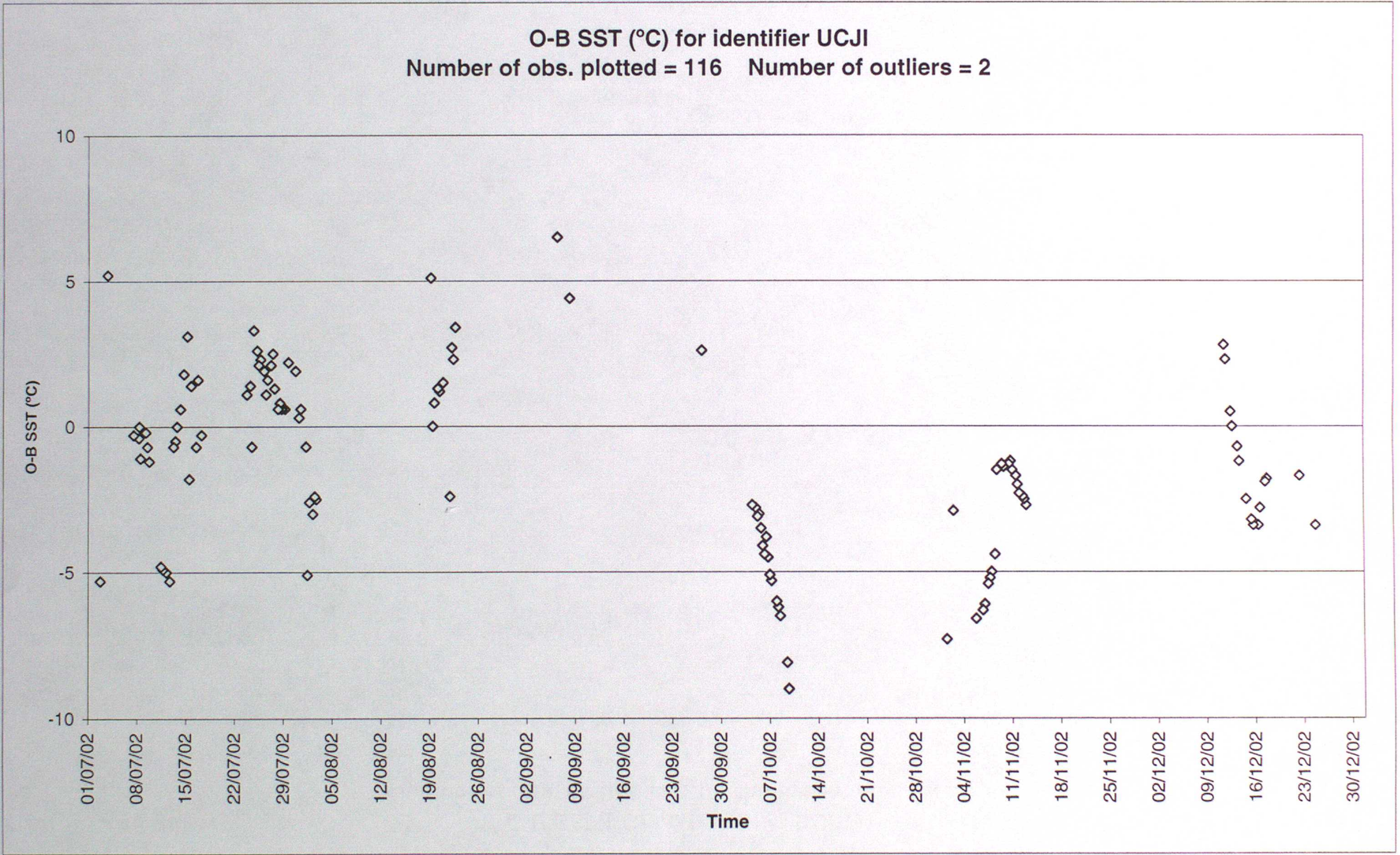


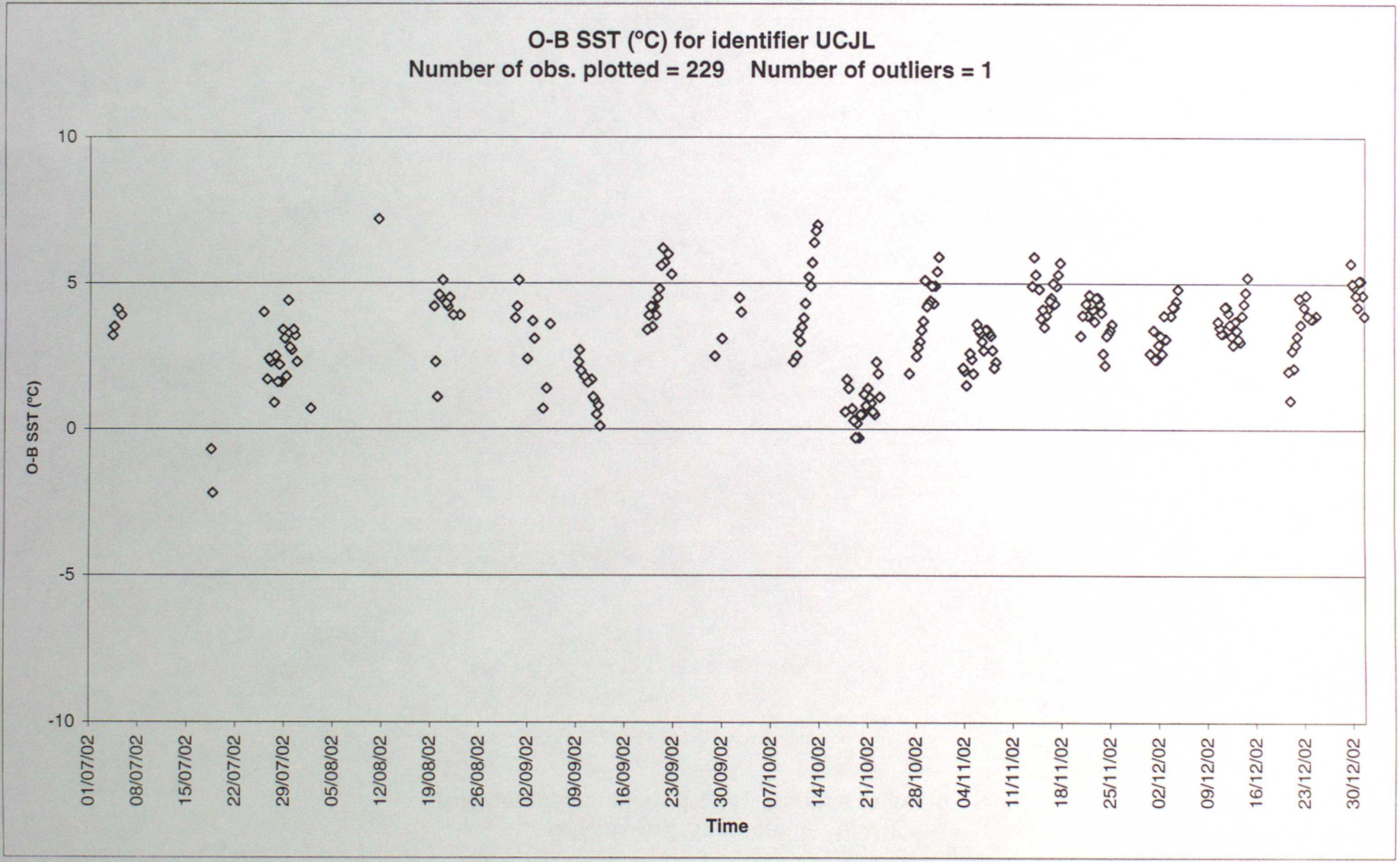


O-B SST (°C) for identifier UCBP
Number of obs. plotted = 173   Number of outliers = 0

O-B SST (°C) for identifier UCDM
Number of obs. plotted = 121   Number of outliers = 1

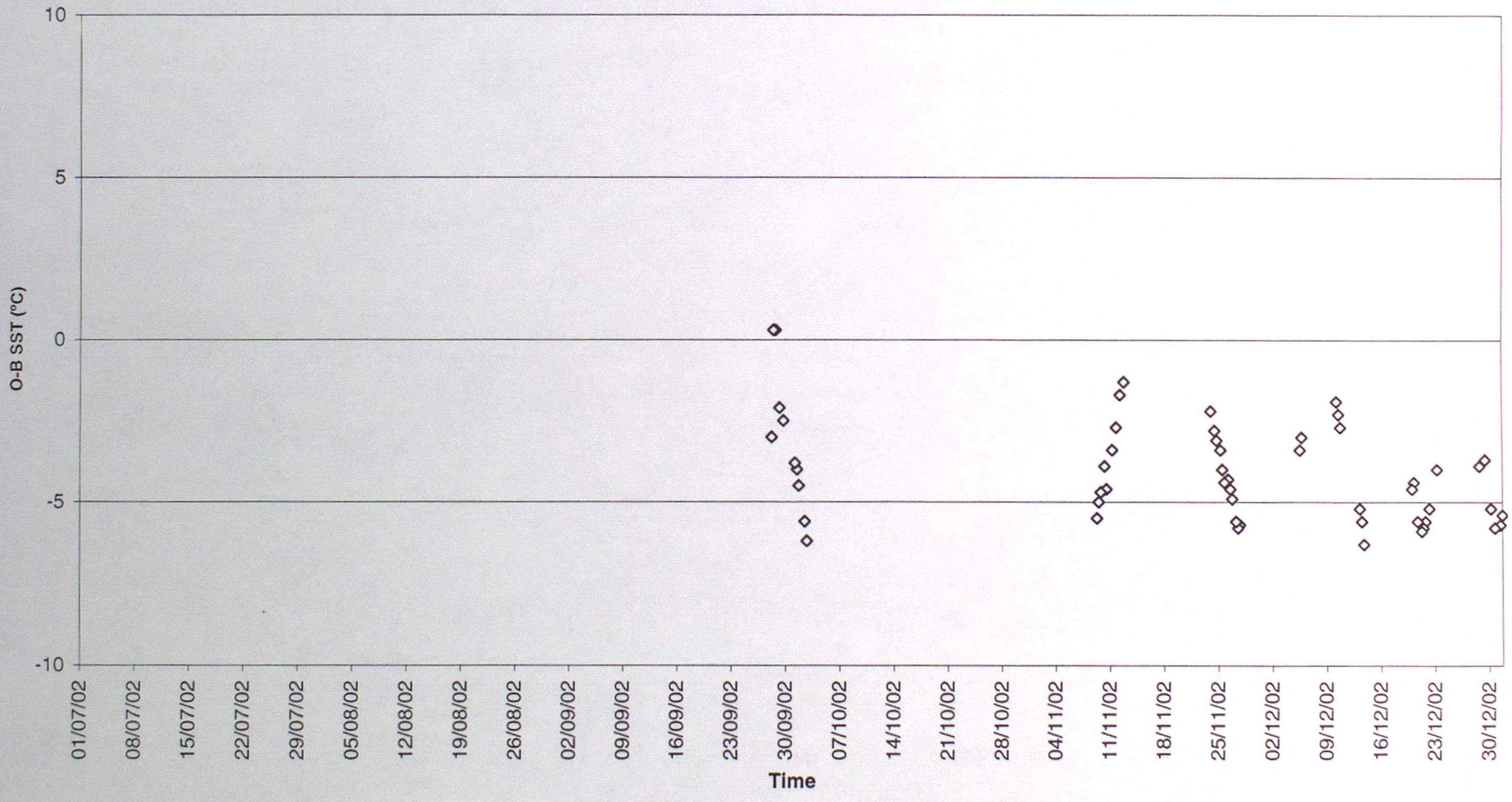



O-B SST (°C) for identifier UCJI
Number of obs. plotted = 116   Number of outliers = 2

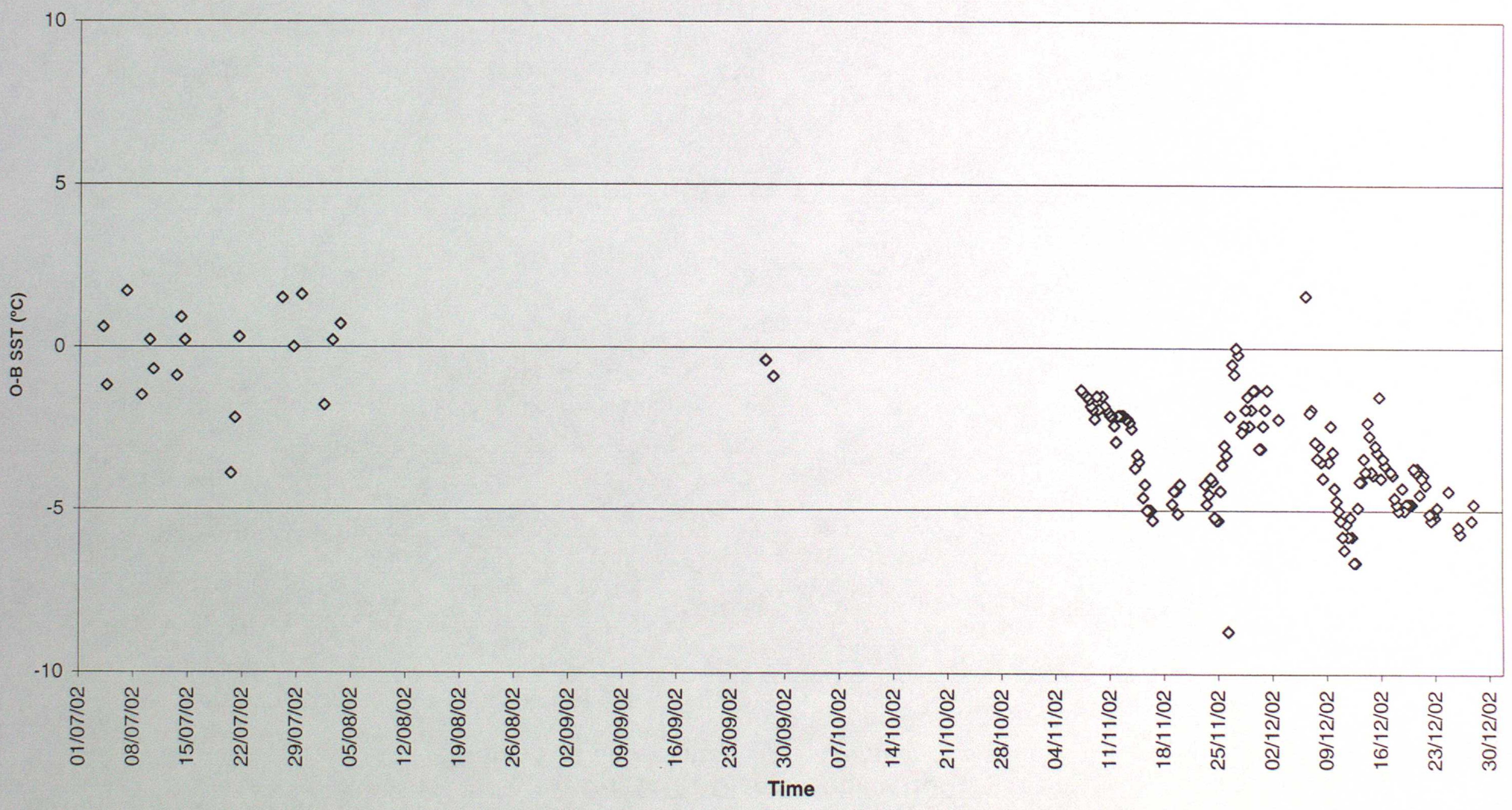

O-B SST (°C) for identifier UCJL
Number of obs. plotted = 229   Number of outliers = 1

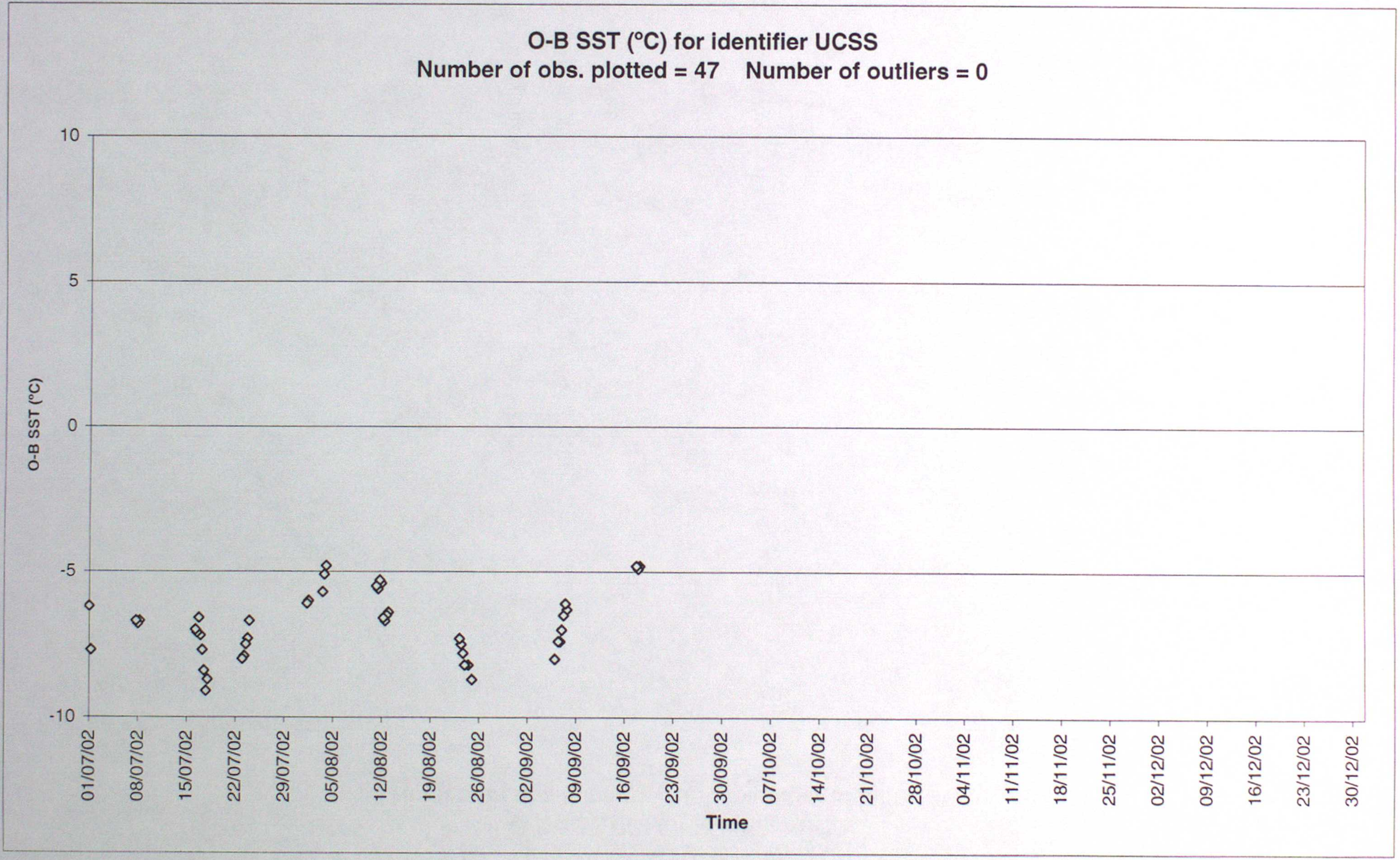
O-B SST (°C) for identifier UCJO

Number of obs. plotted = 53   Number of outliers = 1



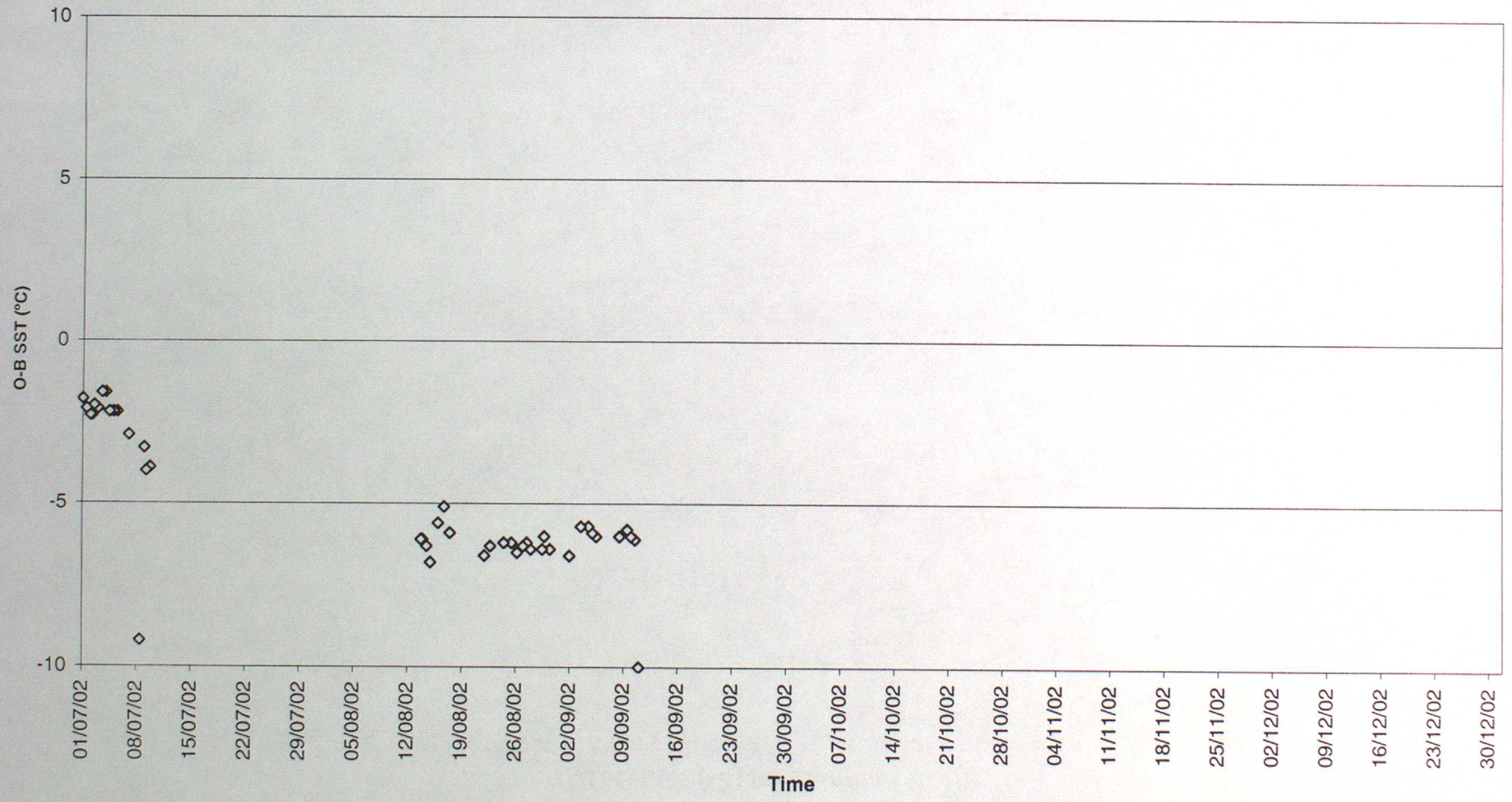
O-B SST (°C) for identifier UCOL
Number of obs. plotted = 157   Number of outliers = 0

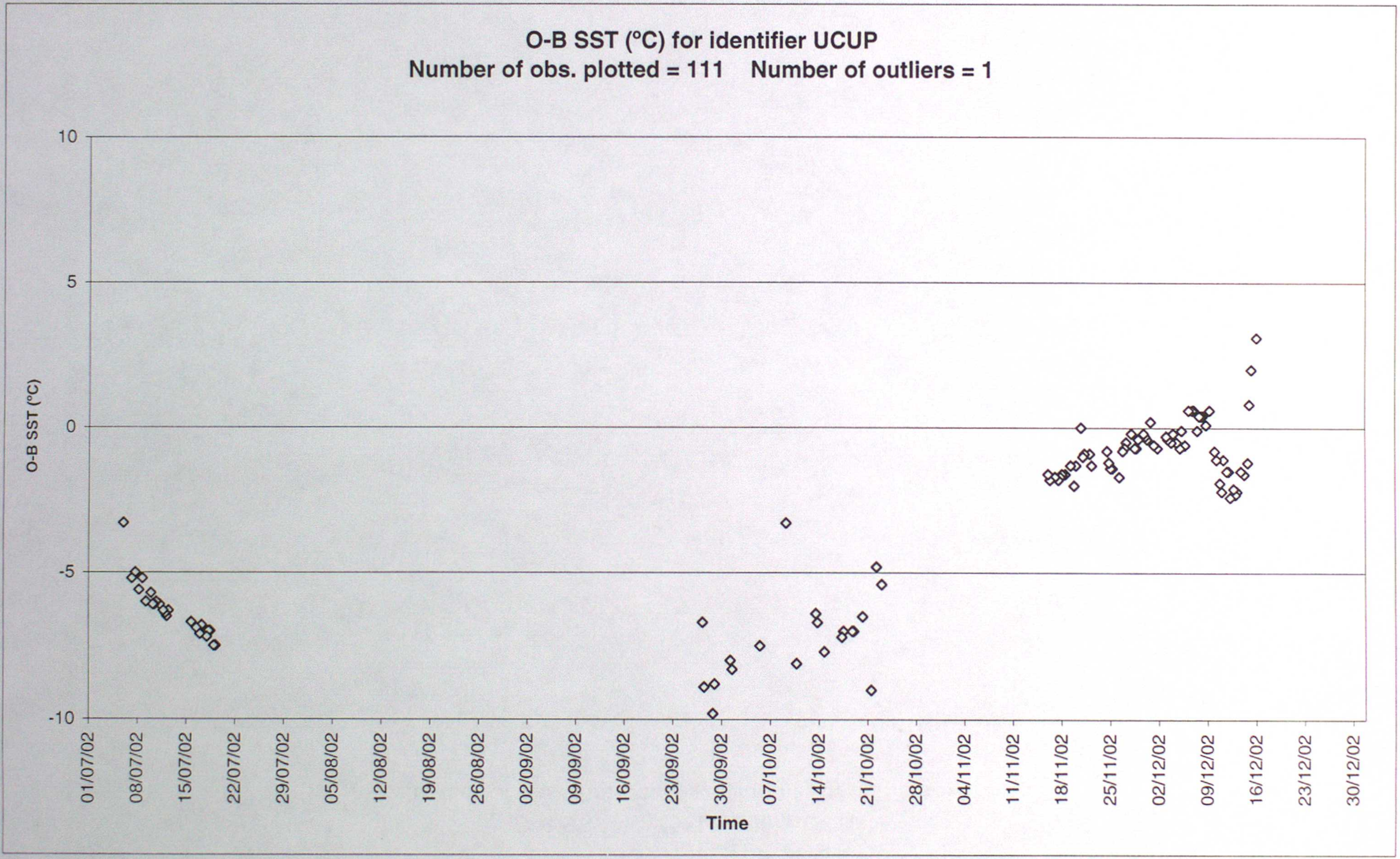




O-B SST (°C) for identifier UCSS
Number of obs. plotted = 47   Number of outliers = 0

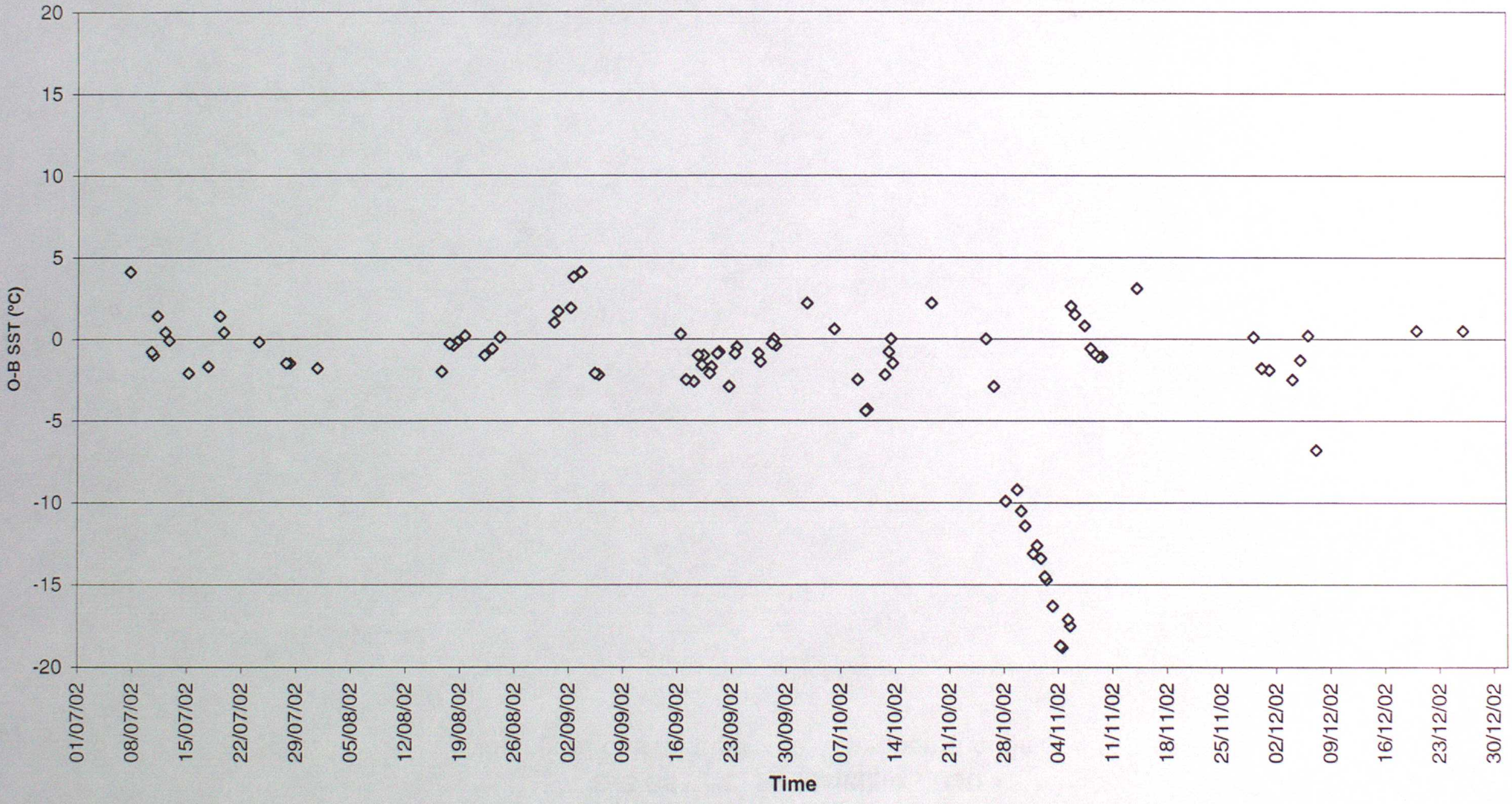
O-B SST (°C) for identifier UCTI
Number of obs. plotted = 44   Number of outliers = 0



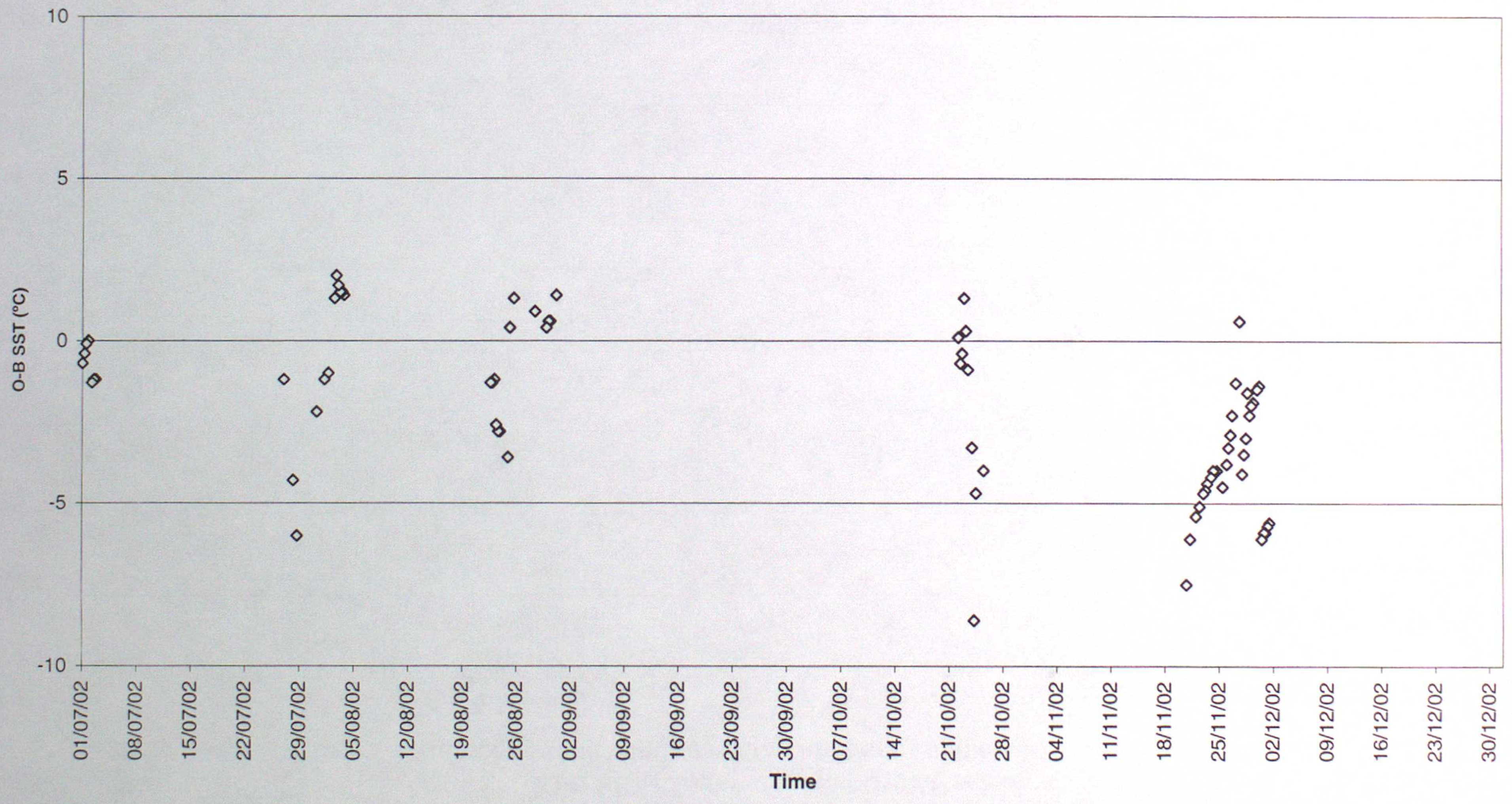


O-B SST (°C) for identifier UCUP
Number of obs. plotted = 111   Number of outliers = 1

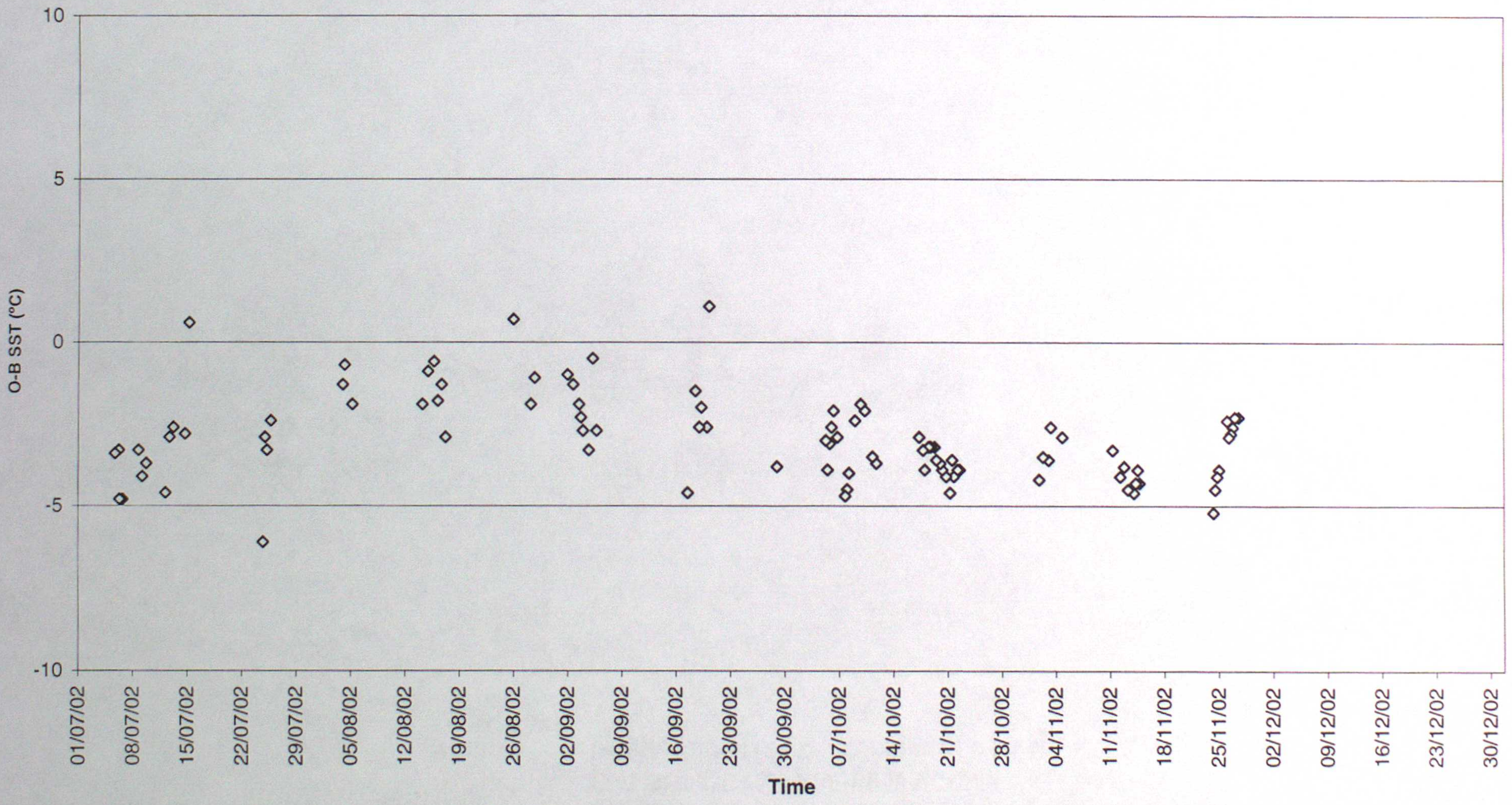
O-B SST (°C) for identifier UHCO
Number of obs. plotted = 90   Number of outliers = 0

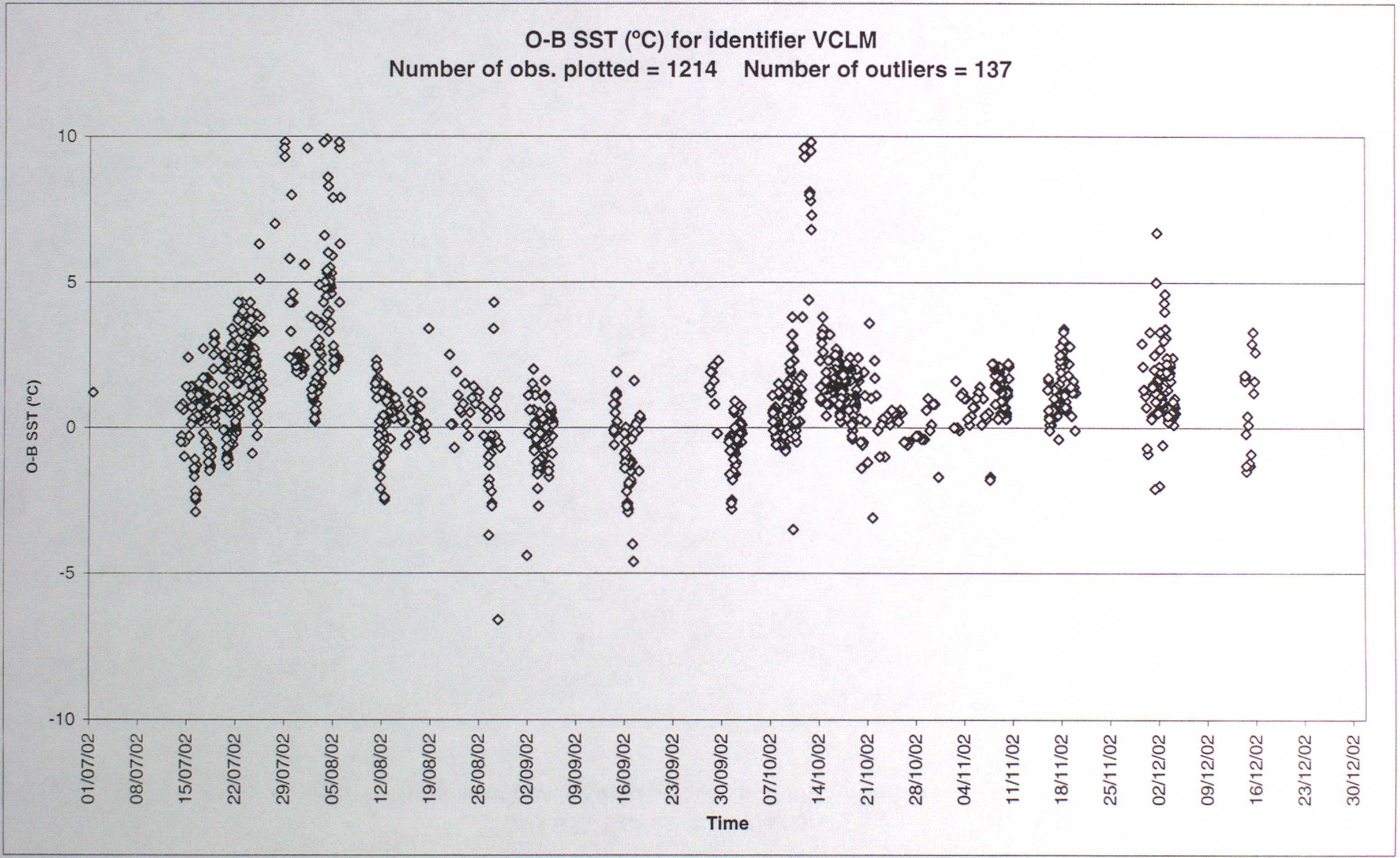


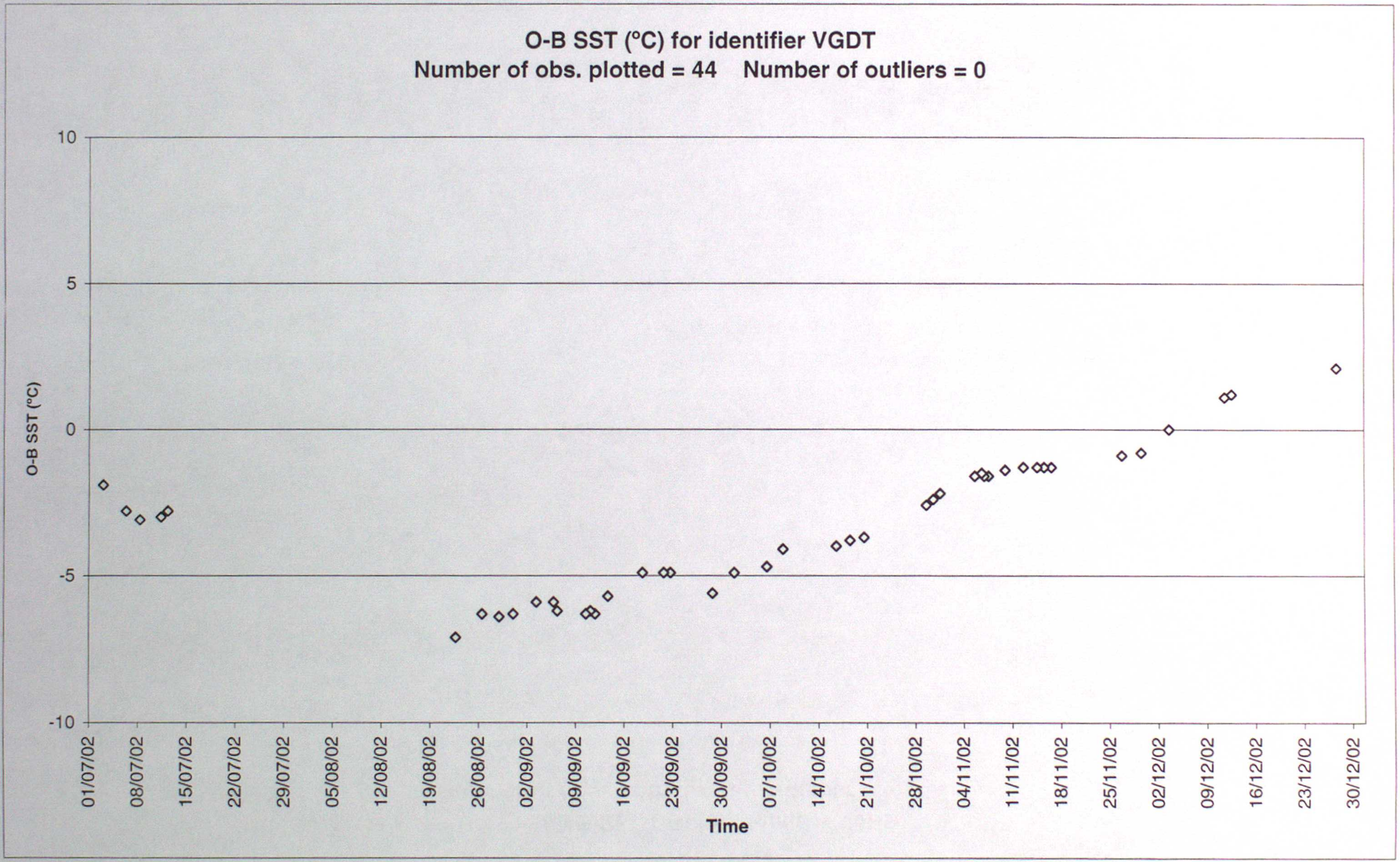
O-B SST (°C) for identifier UHJU
Number of obs. plotted = 74   Number of outliers = 1



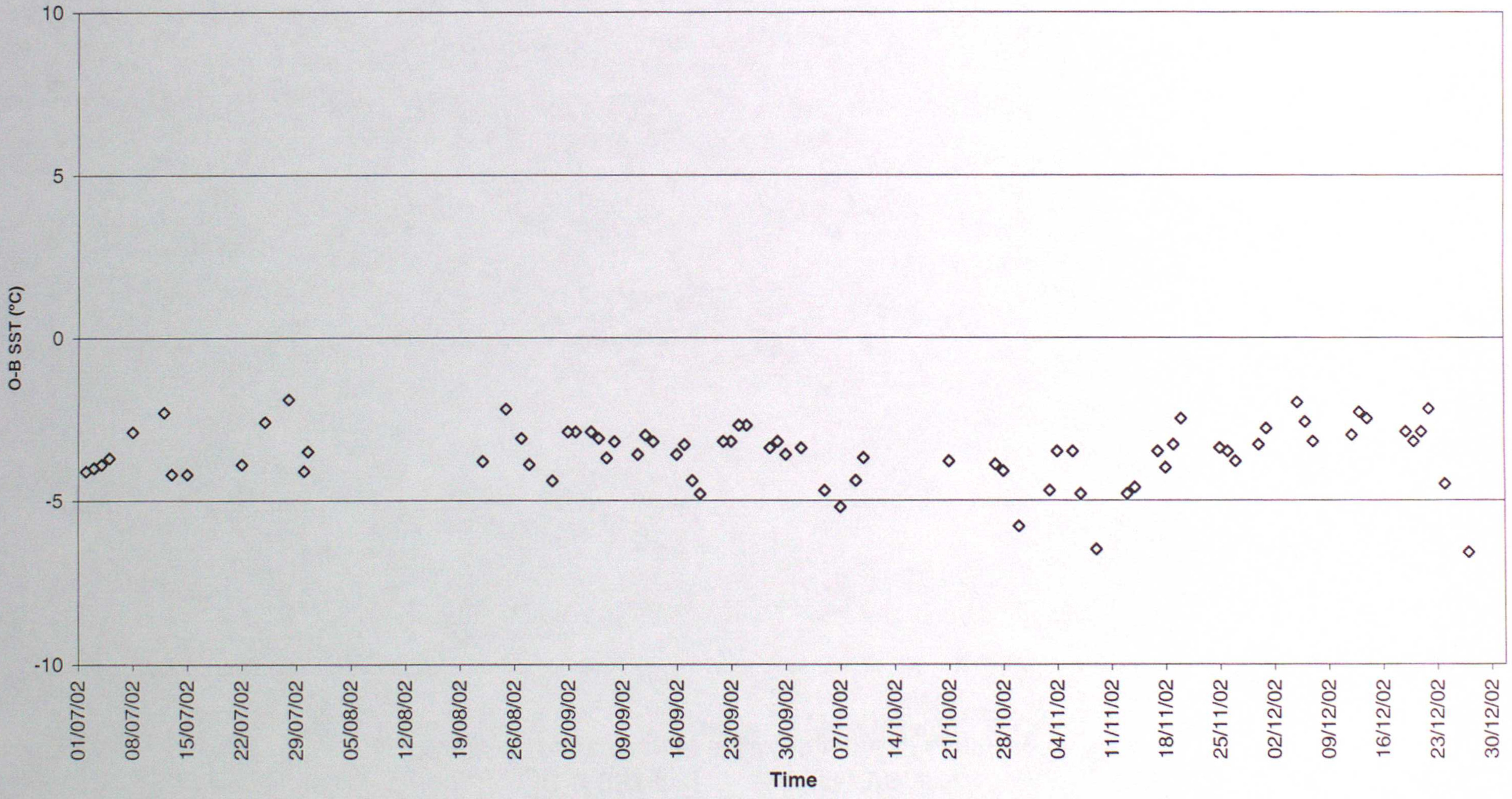
O-B SST (°C) for identifier UHRT
Number of obs. plotted = 95   Number of outliers = 0

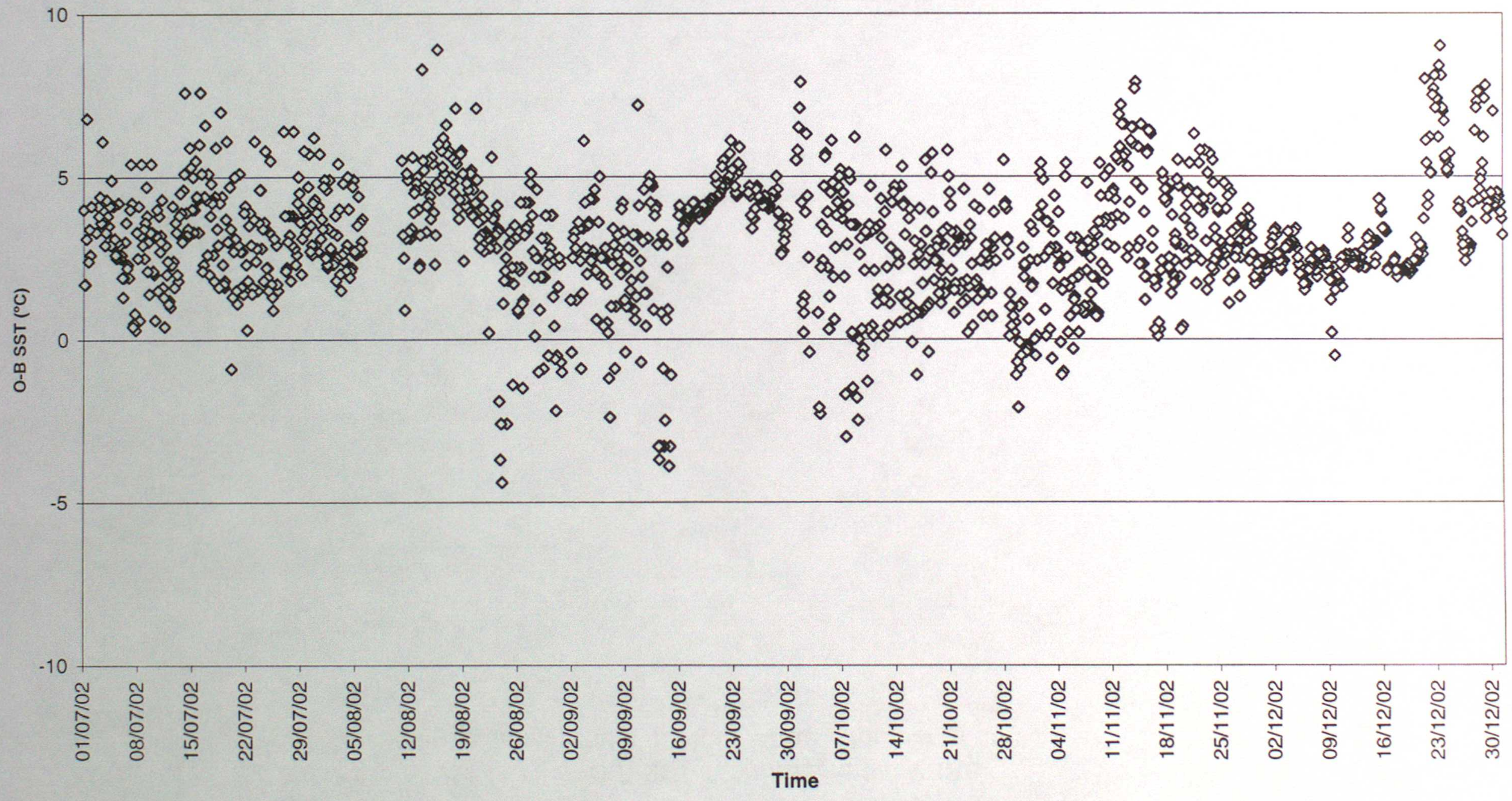



O-B SST (°C) for identifier VCLM
Number of obs. plotted = 1214   Number of outliers = 137


O-B SST (°C) for identifier VGDT
Number of obs. plotted = 44 Number of outliers = 0
O-B SST (°C)
10
5
0
-5
-10
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

O-B SST (°C) for identifier VJRB
Number of obs. plotted = 76   Number of outliers = 1

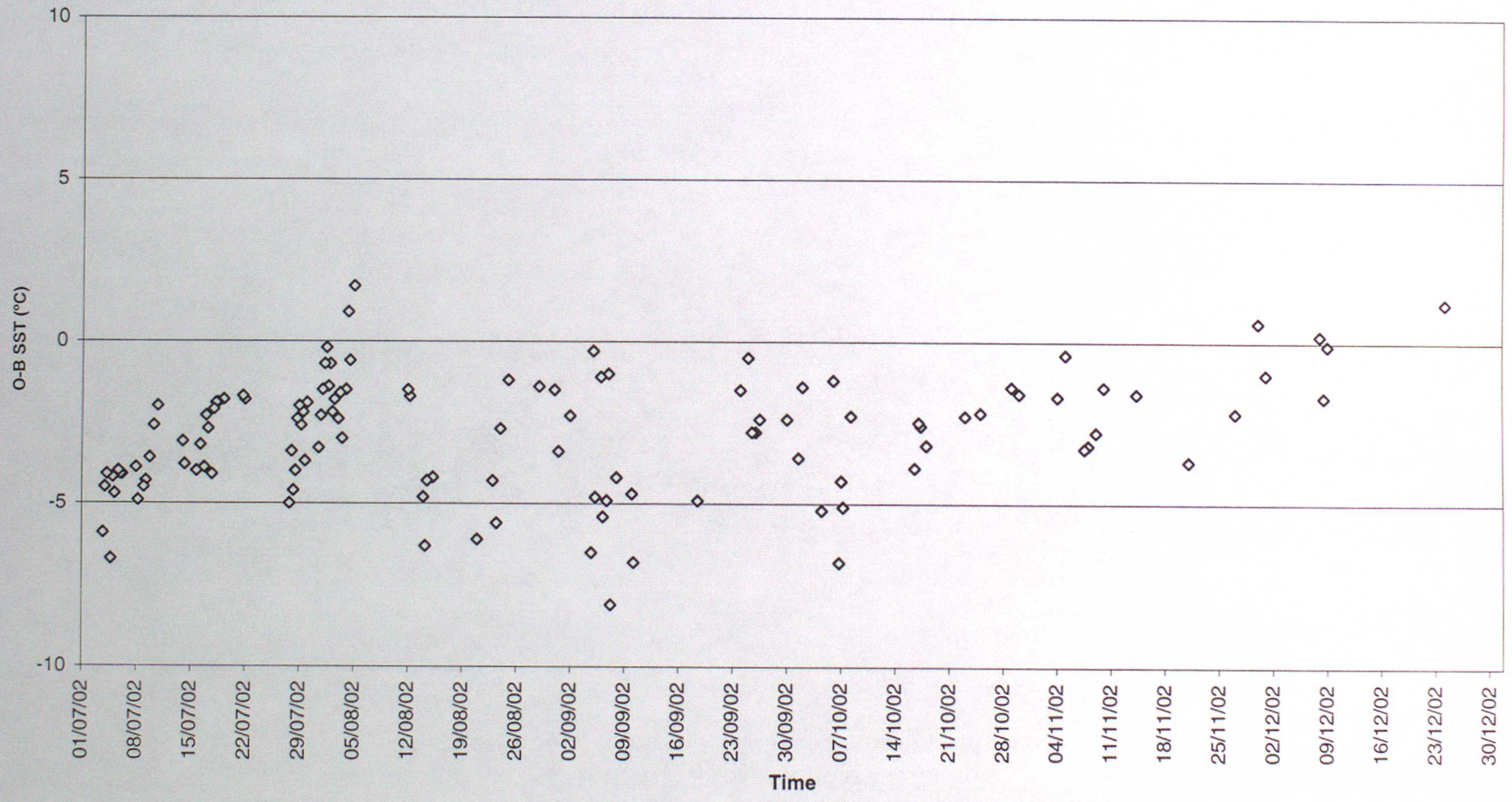




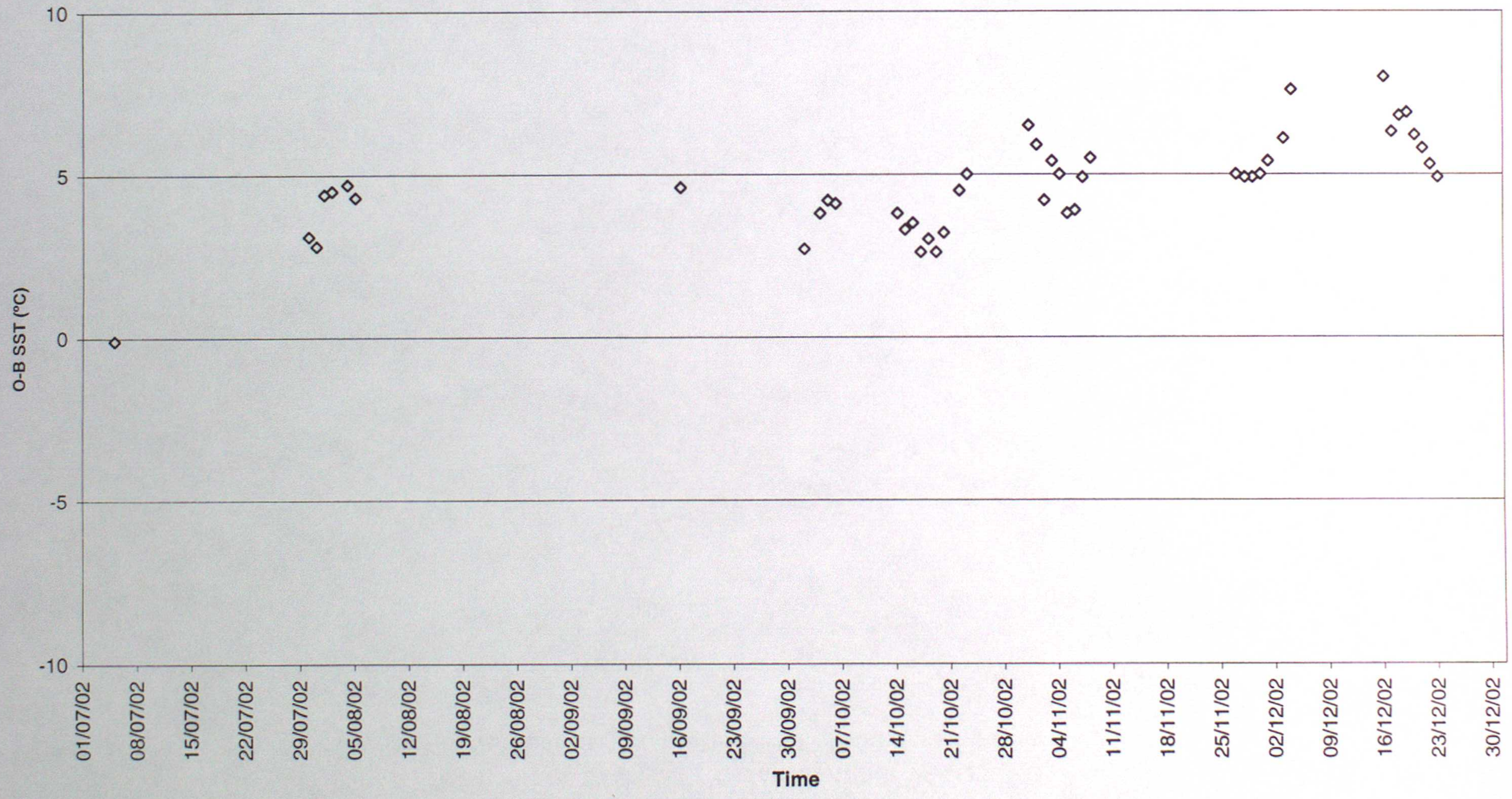
O-B SST (°C) for identifier VOCJ
Number of obs. plotted = 1403   Number of outliers = 0

O-B SST (°C) for identifier VRRB

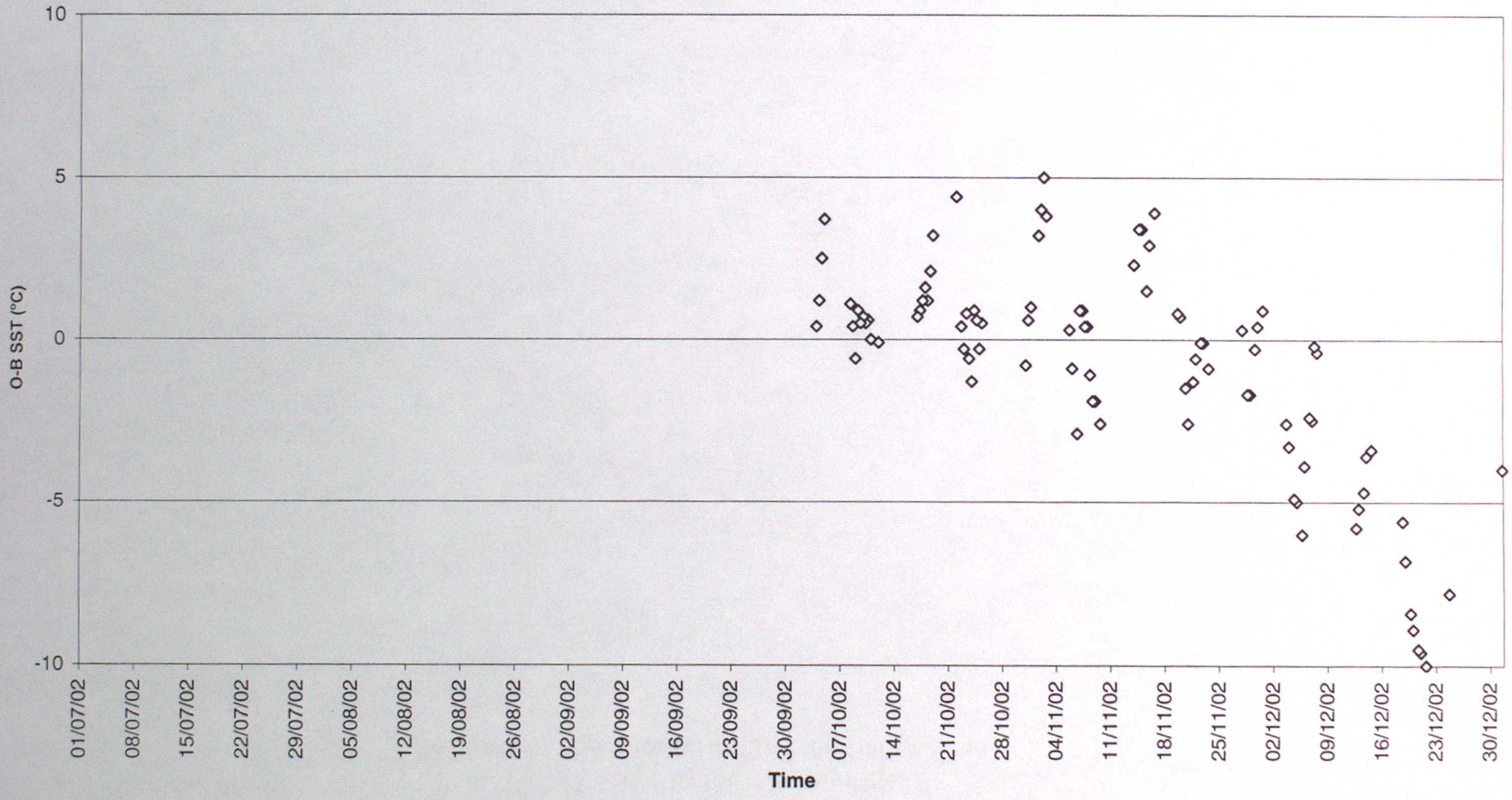
Number of obs. plotted = 120   Number of outliers = 1



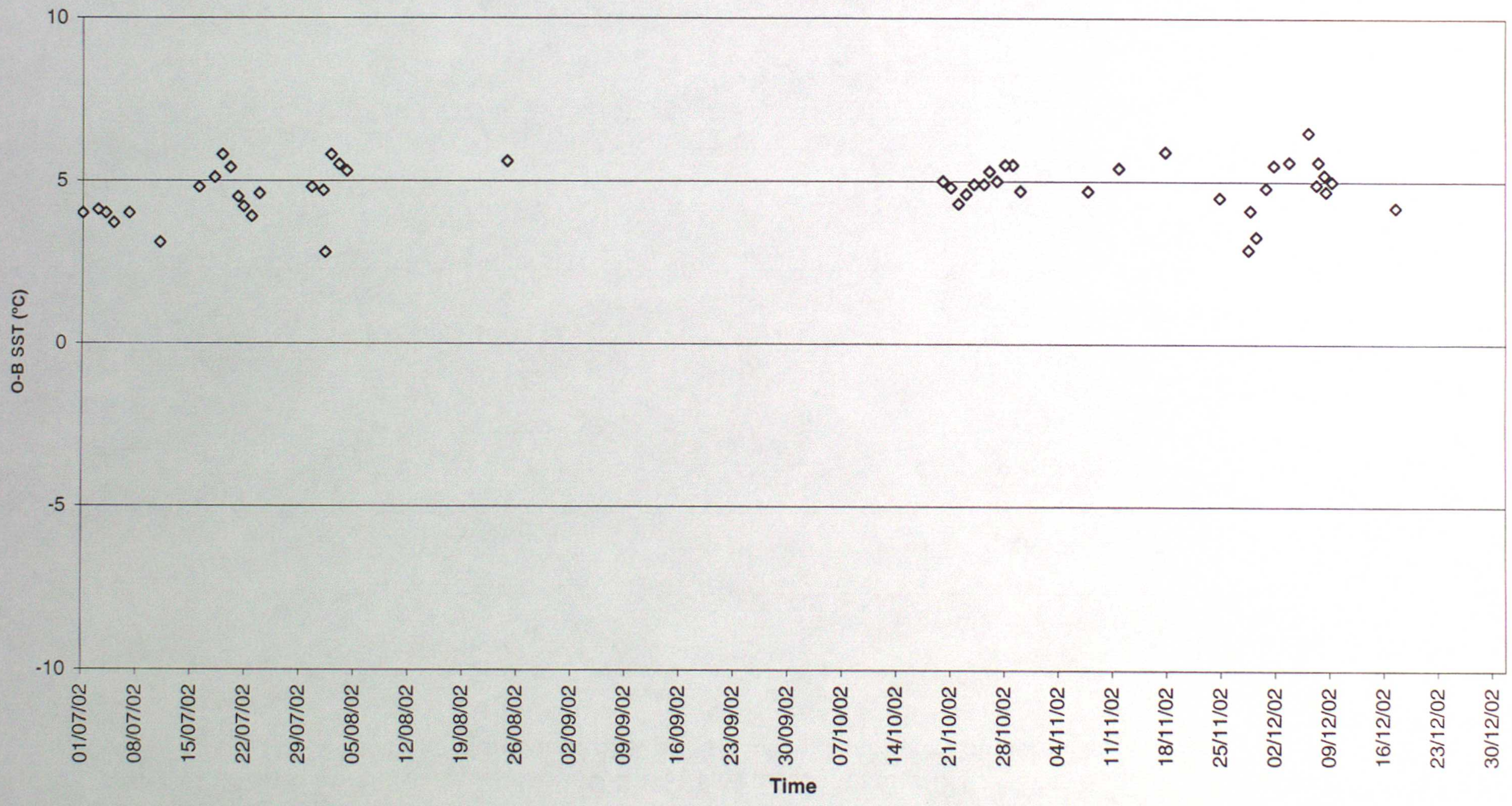
O-B SST (°C) for identifier VRXR5
Number of obs. plotted = 45   Number of outliers = 1

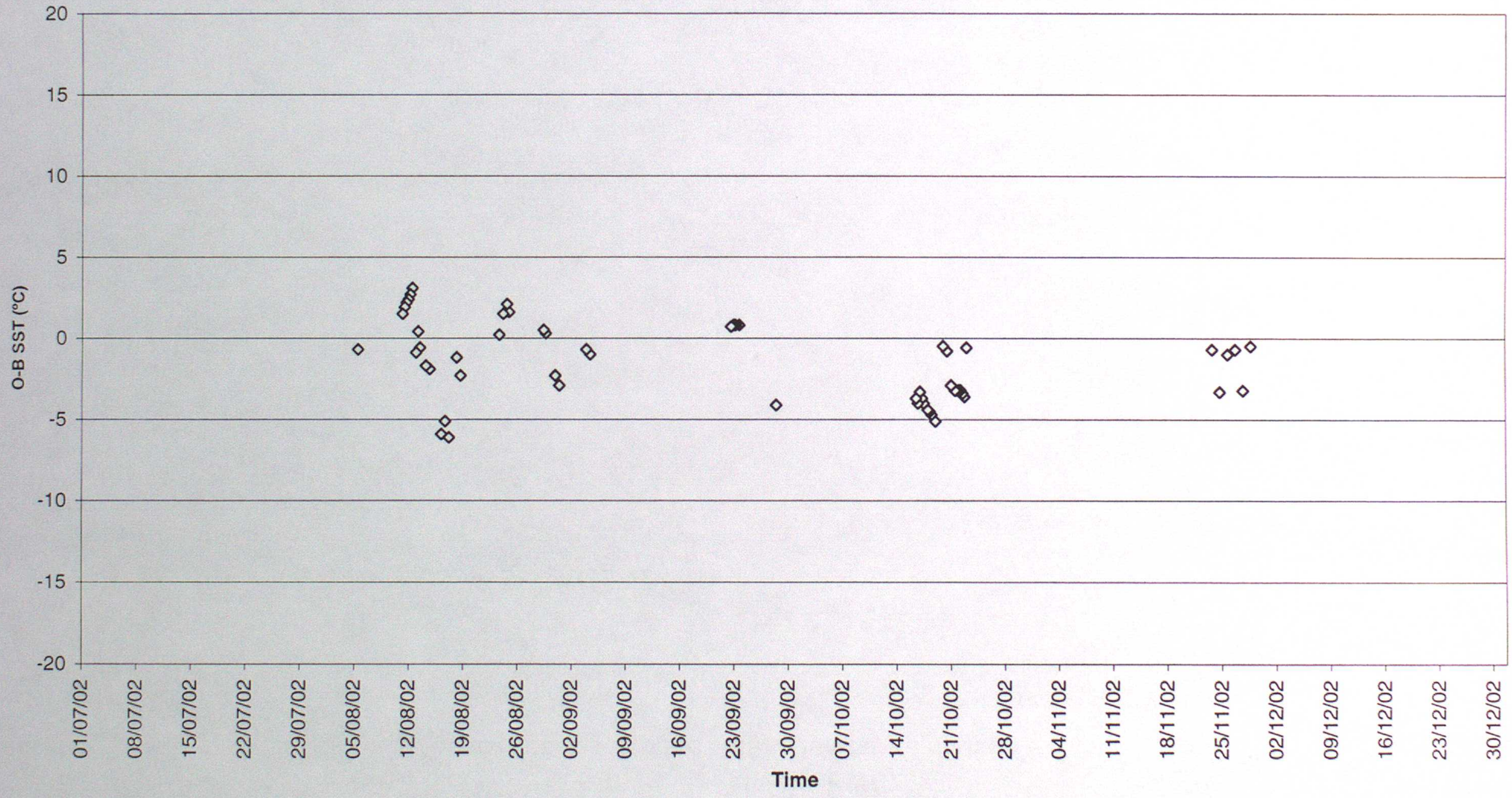


O-B SST (°C) for identifier V2AQ3
Number of obs. plotted = 94   Number of outliers = 0

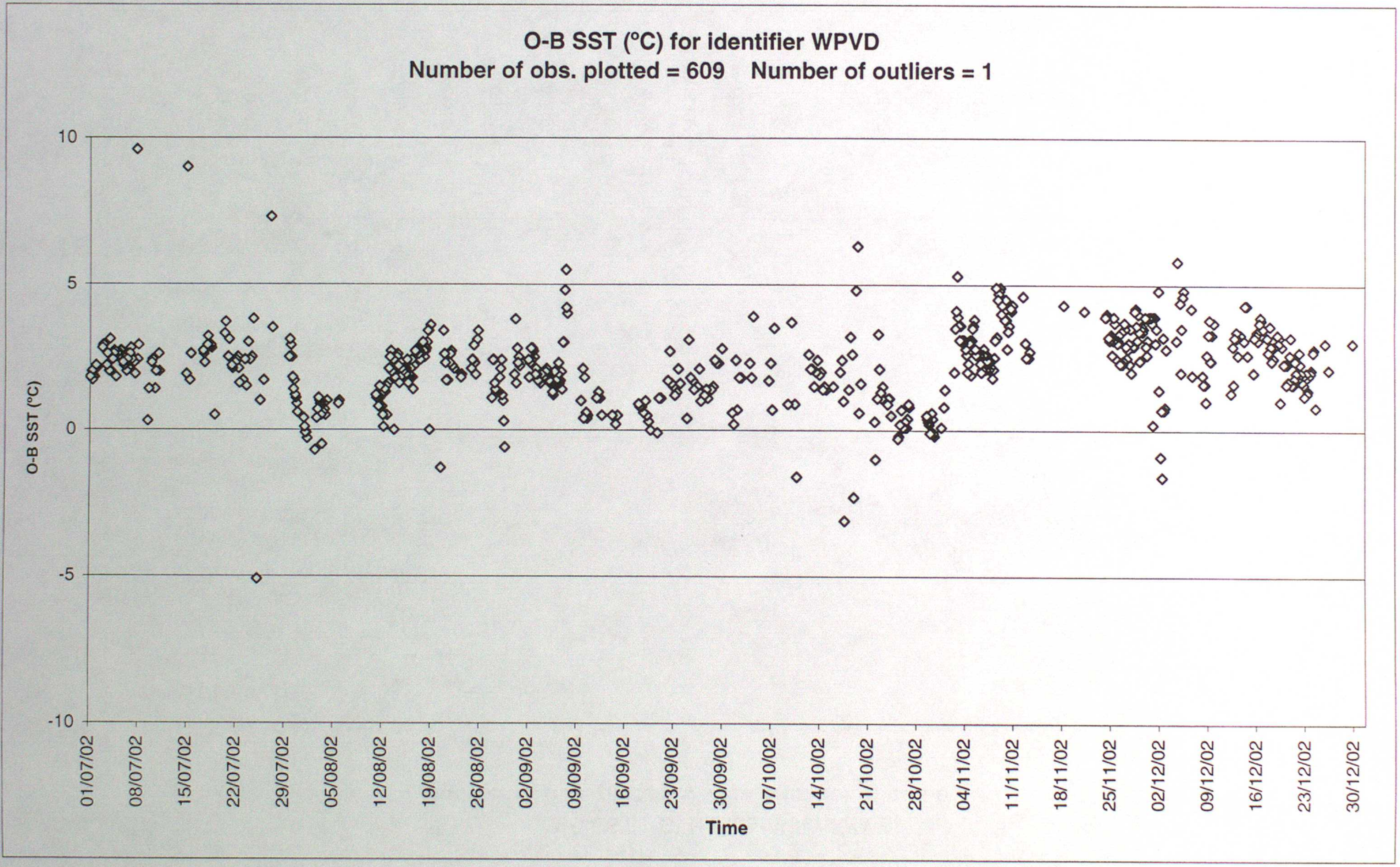


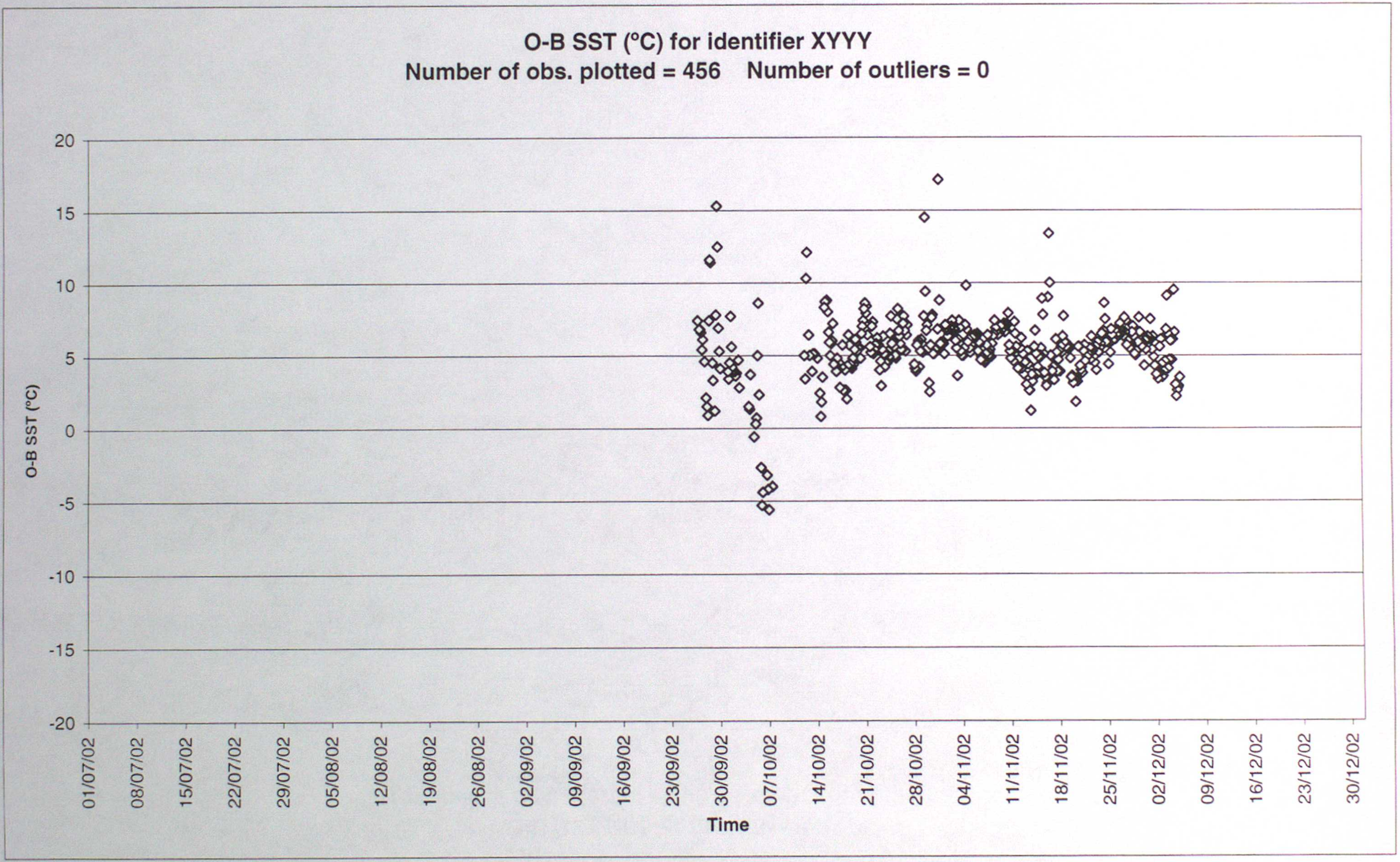
O-B SST (°C) for identifier WCZ9380
Number of obs. plotted = 49   Number of outliers = 2



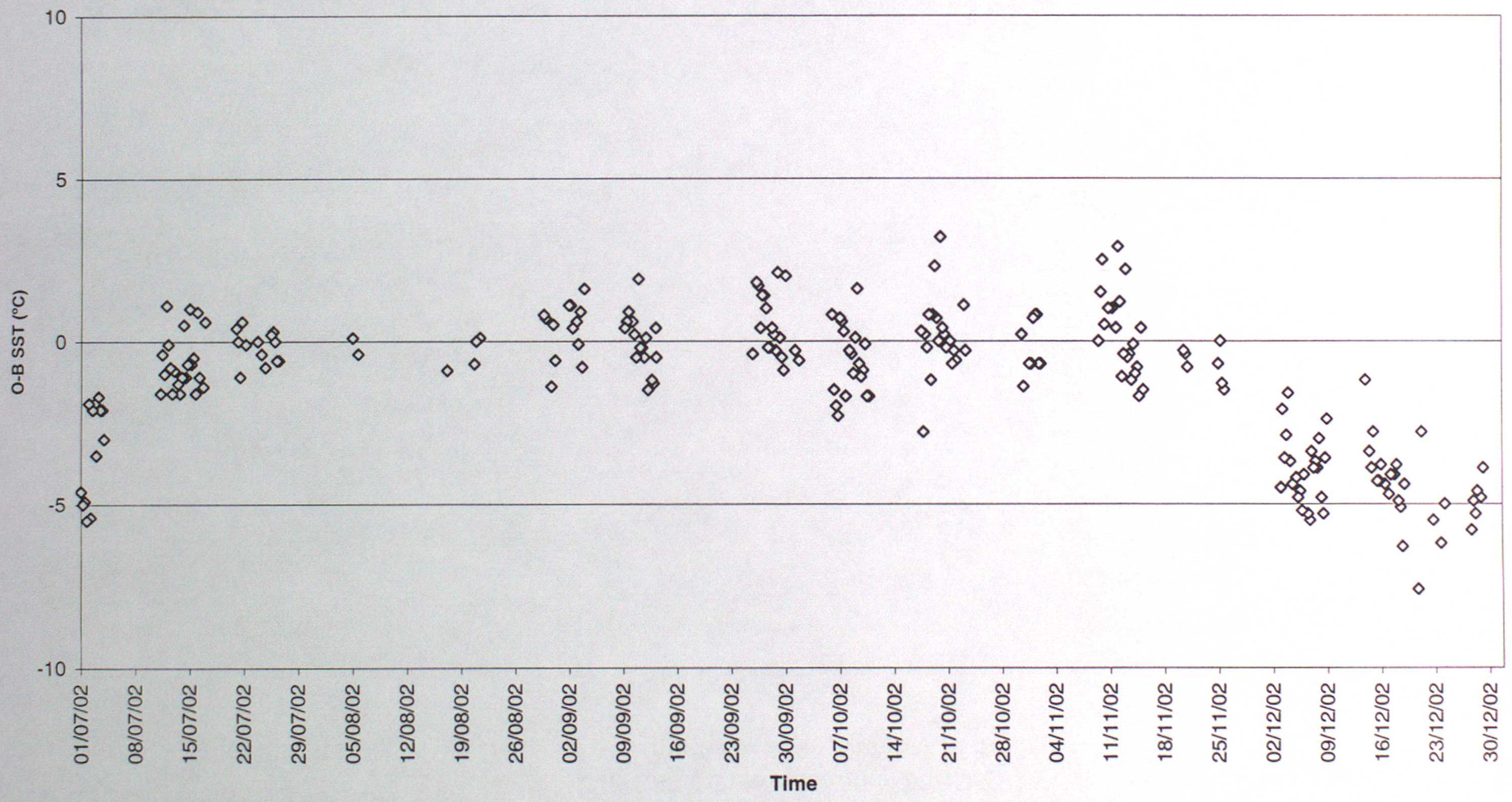


O-B SST (°C) for identifier WDHL
Number of obs. plotted = 57   Number of outliers = 35

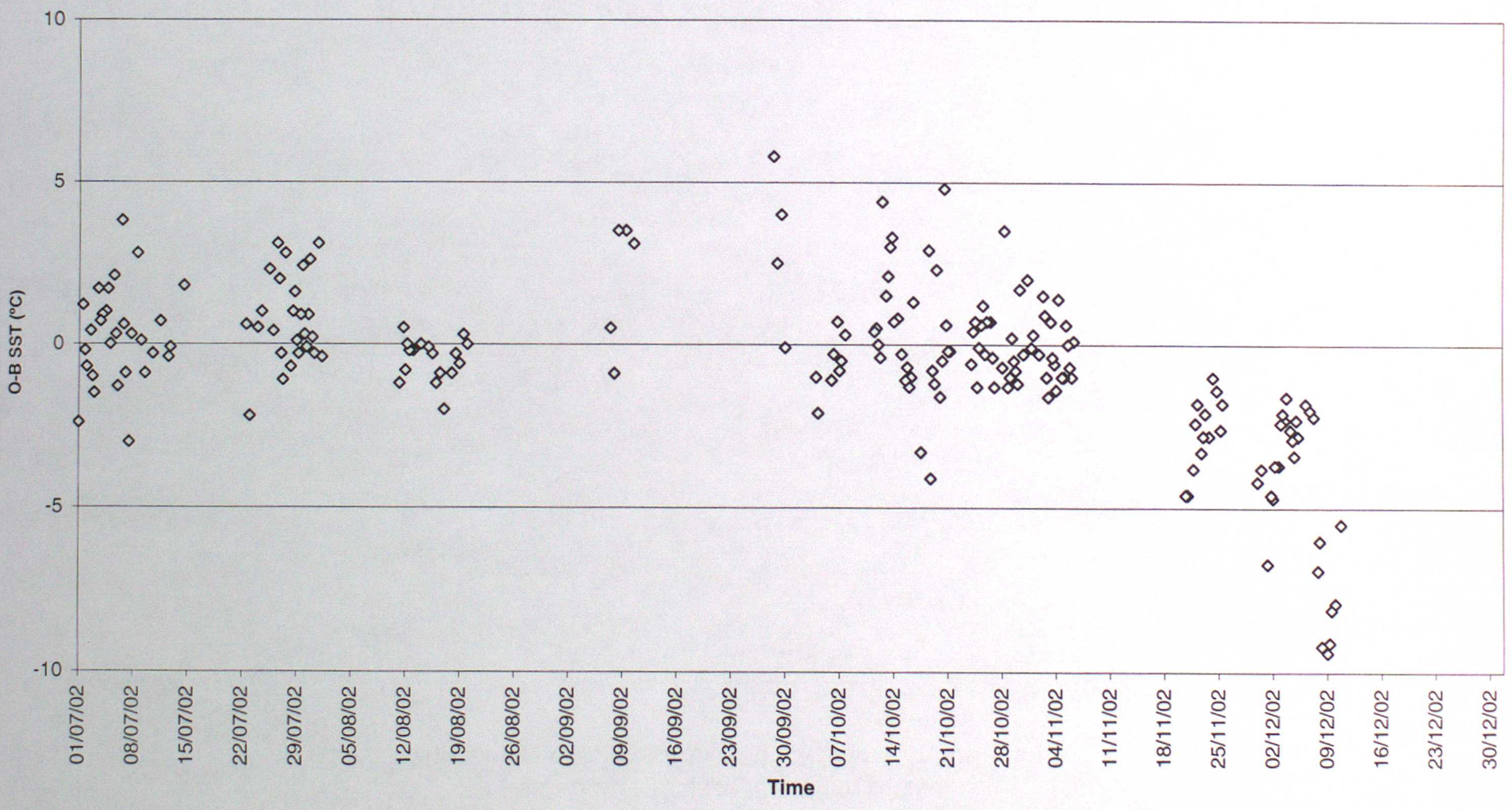

O-B SST (°C) for identifier WPVD
Number of obs. plotted = 609   Number of outliers = 1
O-B SST (°C)
10
5
0
-5
-10
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time


O-B SST (°C) for identifier XYYY
Number of obs. plotted = 456   Number of outliers = 0
O-B SST (°C)
20
15
10
5
0
-5
-10
-15
-20
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

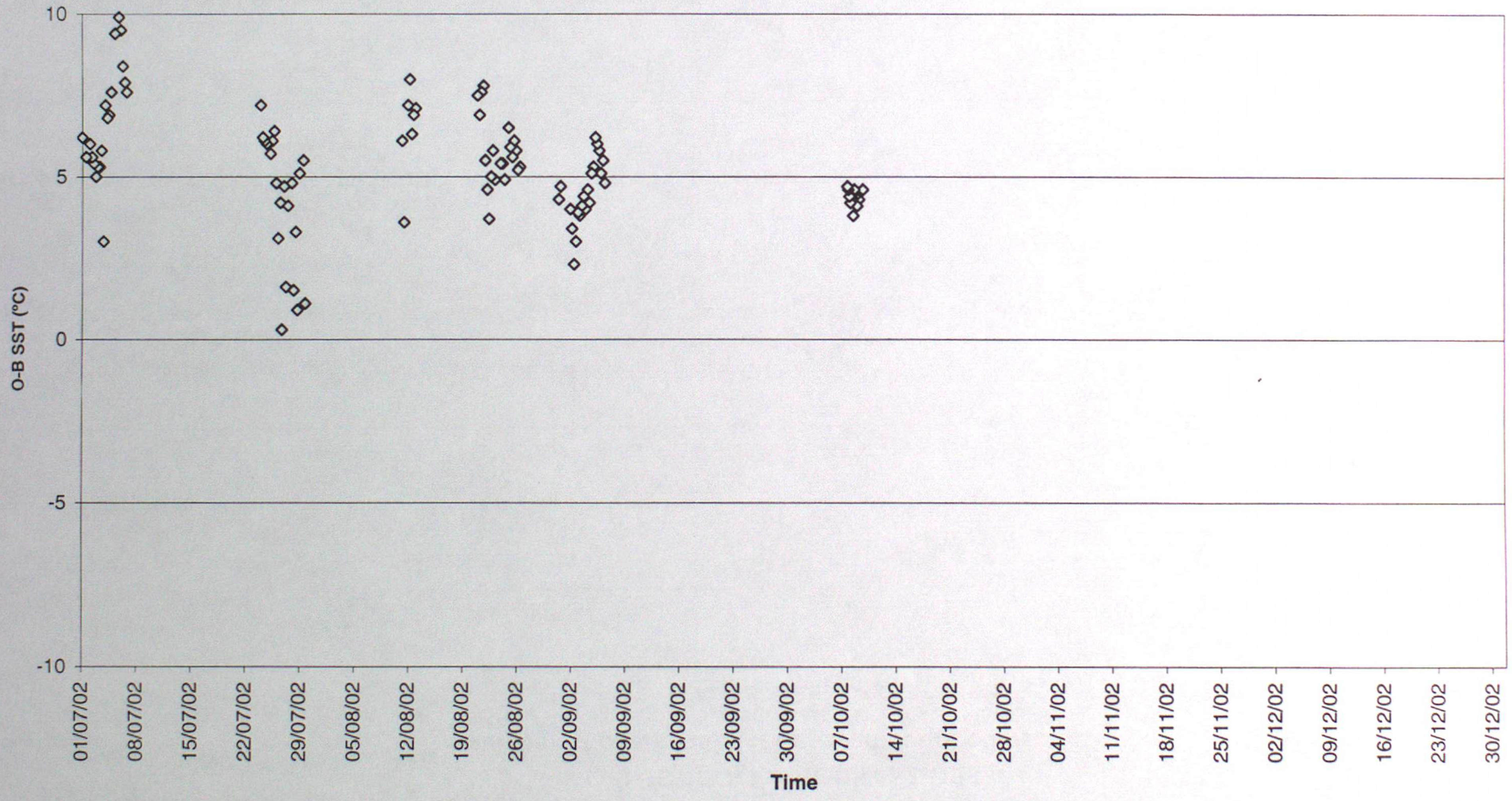
O-B SST (°C) for identifier YJQL3
Number of obs. plotted = 228   Number of outliers = 1



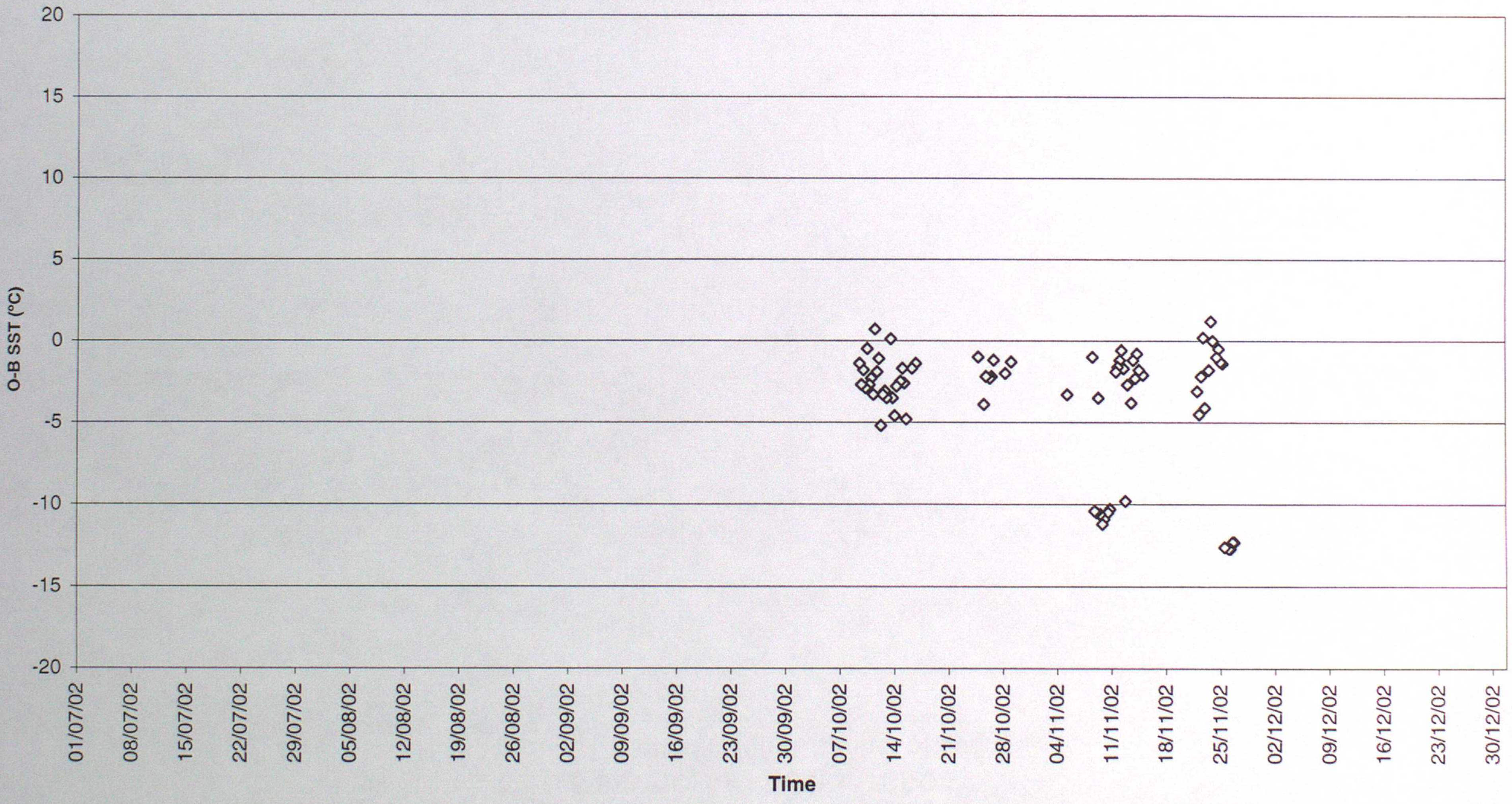
O-B SST (°C) for identifier ZCBO5
Number of obs. plotted = 200   Number of outliers = 2

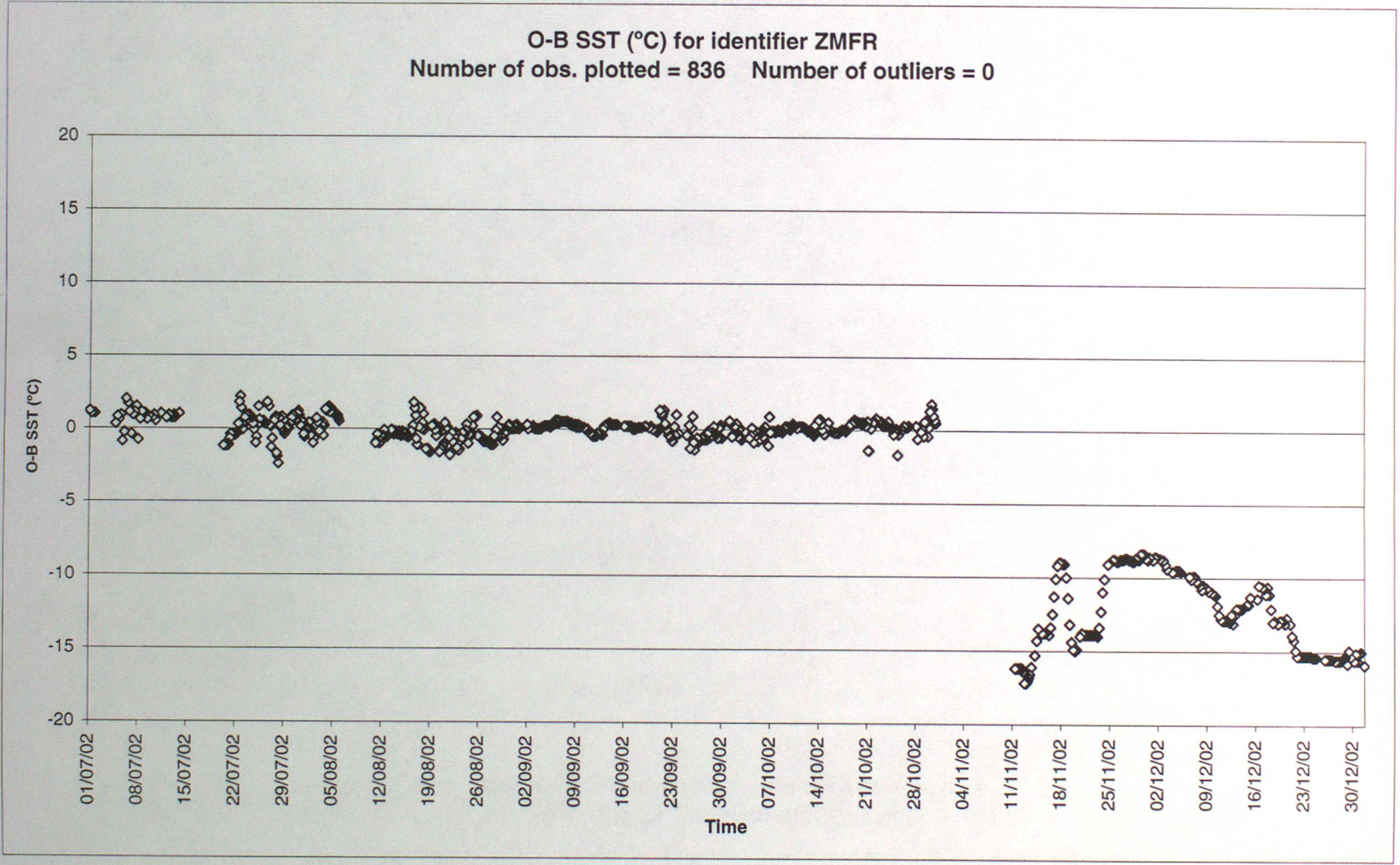


O-B SST (°C) for identifier ZCBQ2
Number of obs. plotted = 100   Number of outliers = 2



O-B SST (°C) for identifier ZIQE8
Number of obs. plotted = 73 Number of outliers = 1

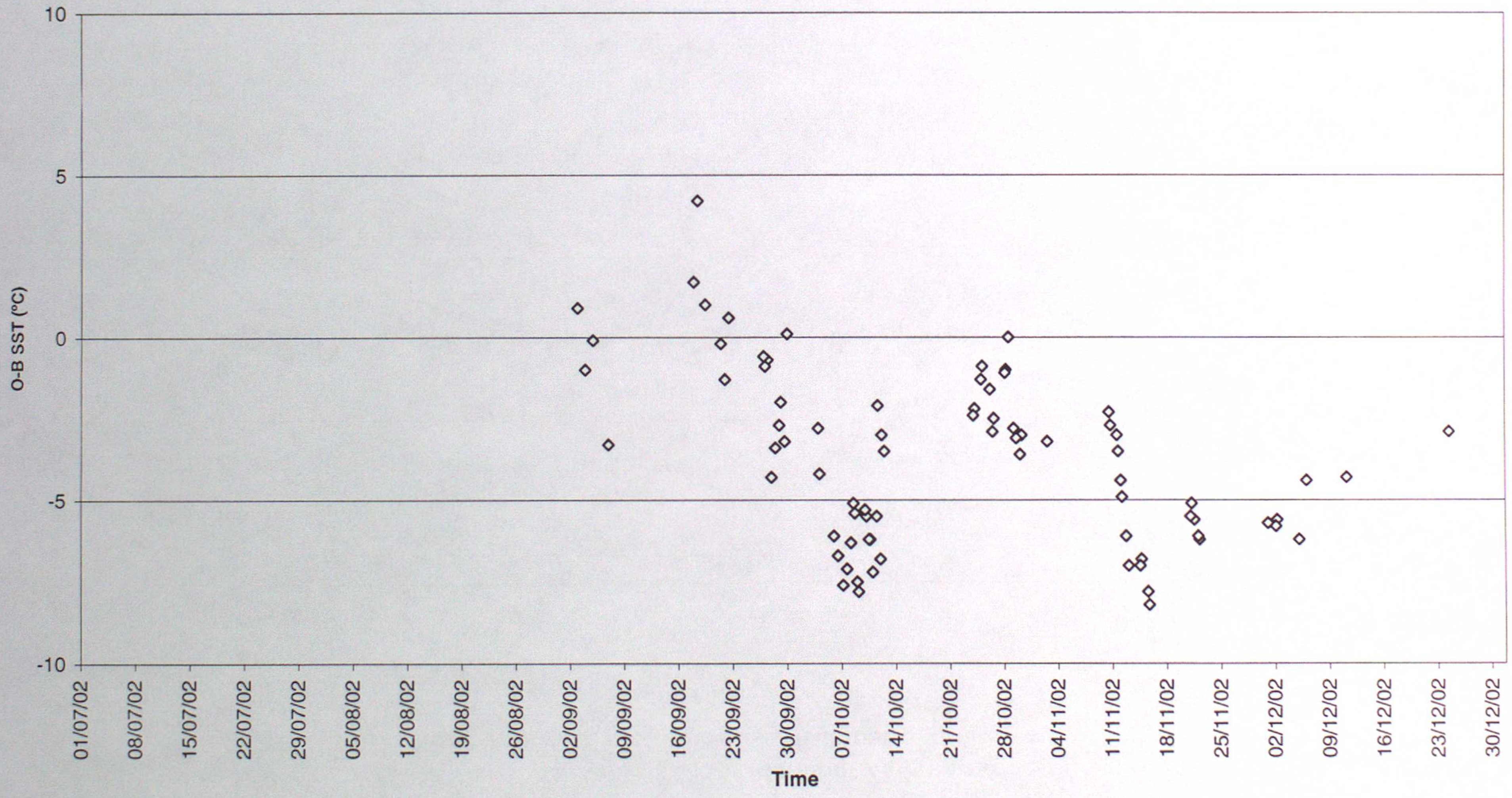


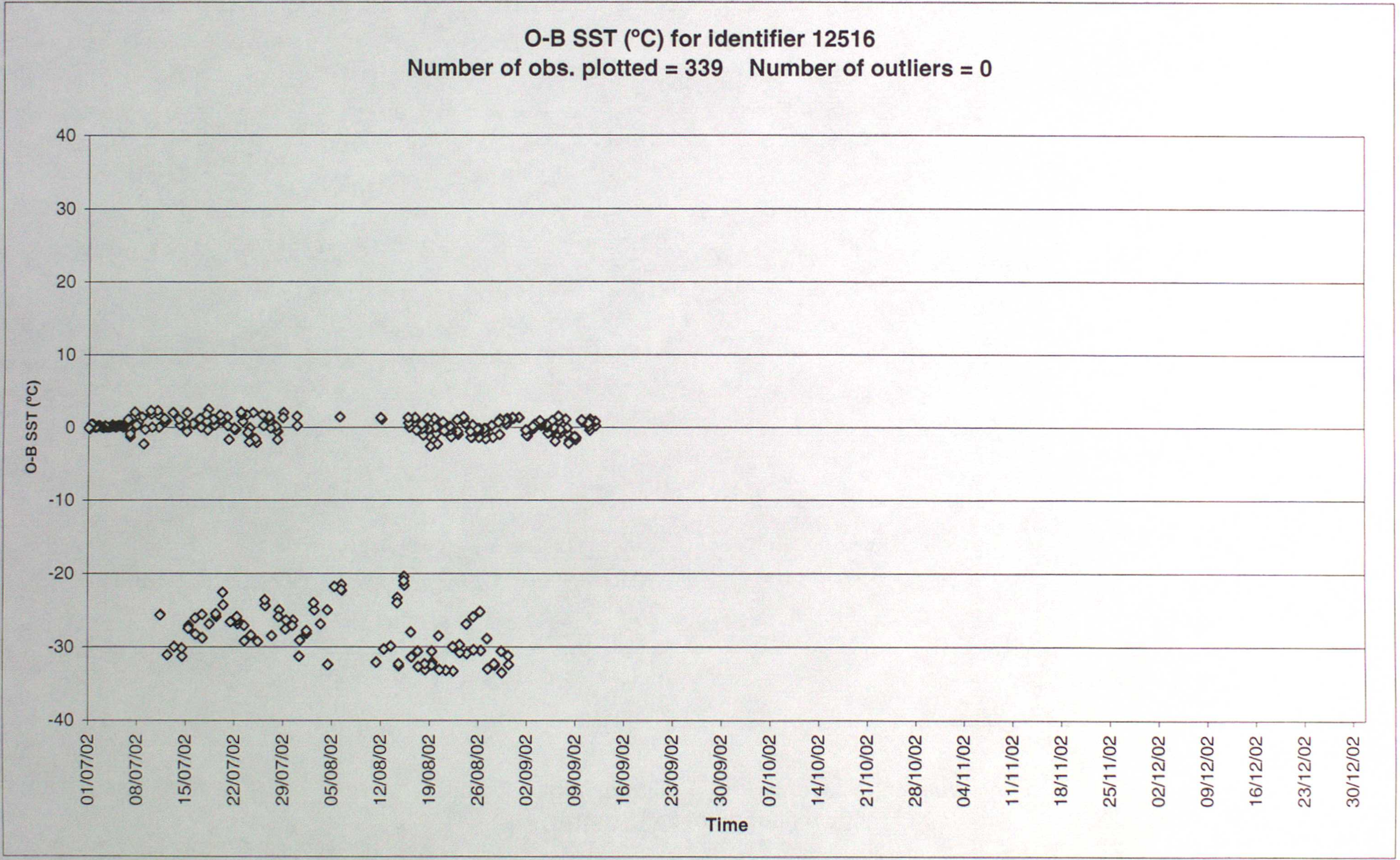


O-B SST (°C) for identifier ZMFR

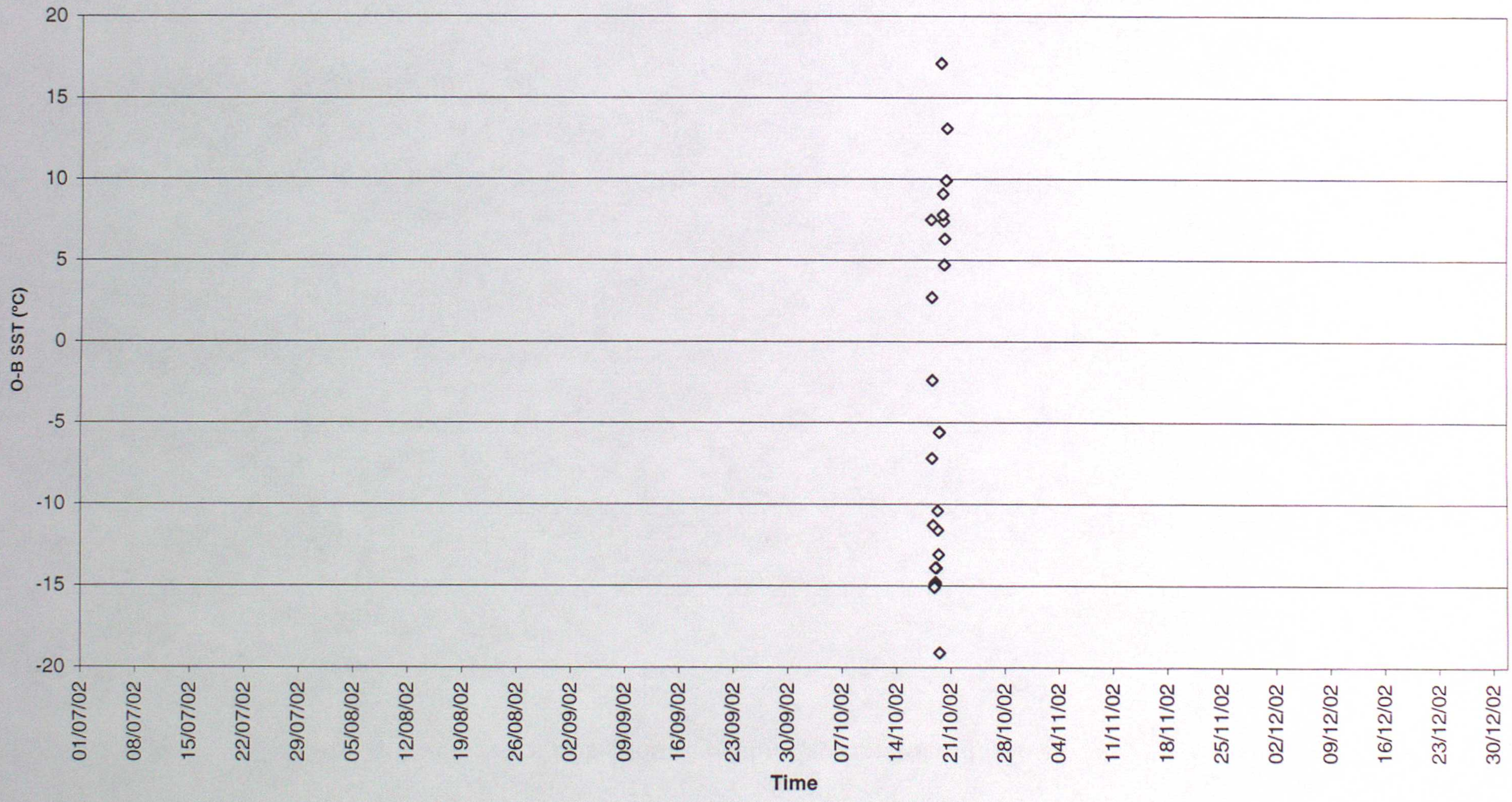
Number of obs. plotted = 836   Number of outliers = 0

O-B SST (°C) for identifier ZQVN8
Number of obs. plotted = 79   Number of outliers = 1

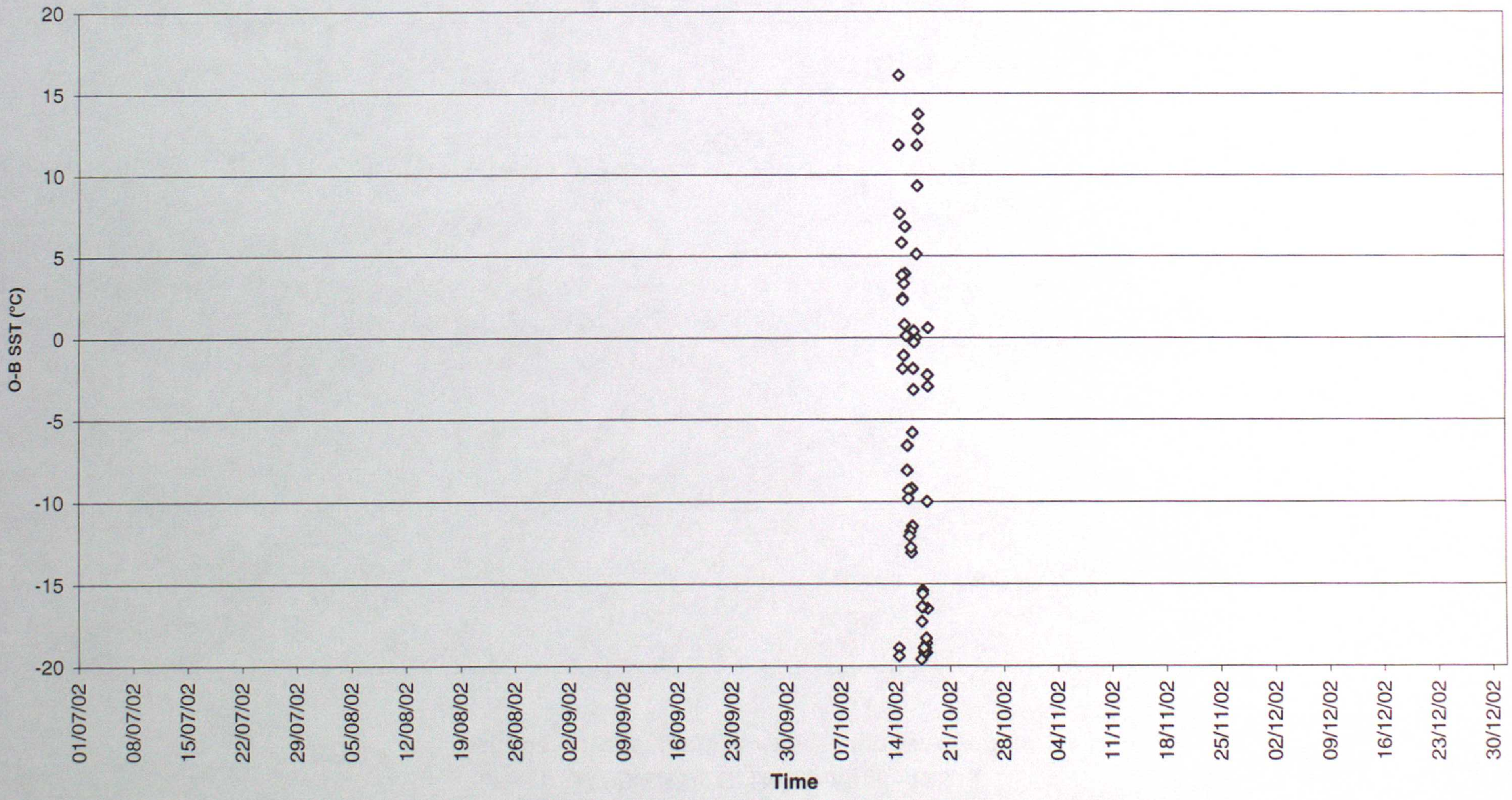




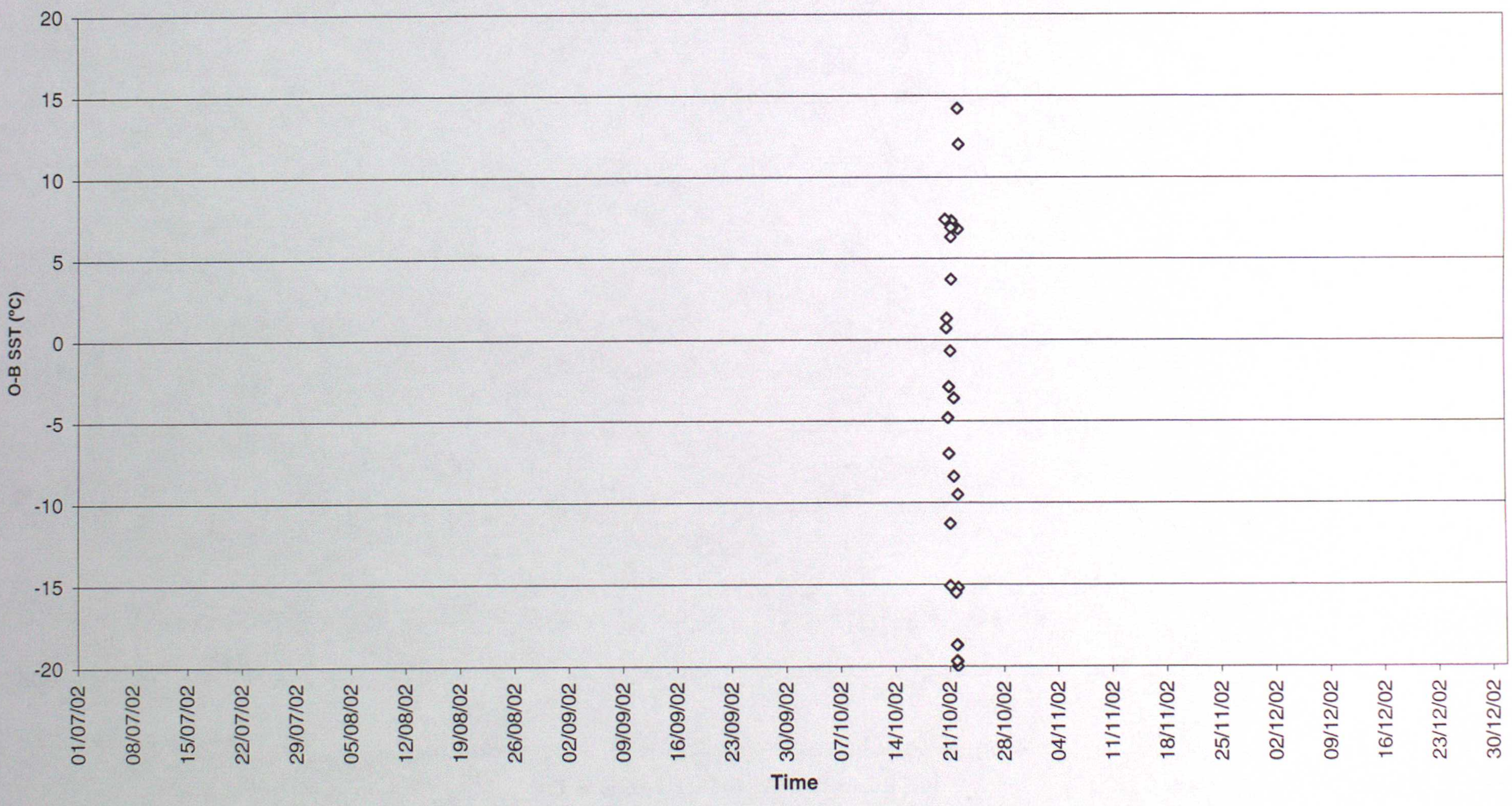
O-B SST (°C) for identifier 12516
Number of obs. plotted = 339   Number of outliers = 0

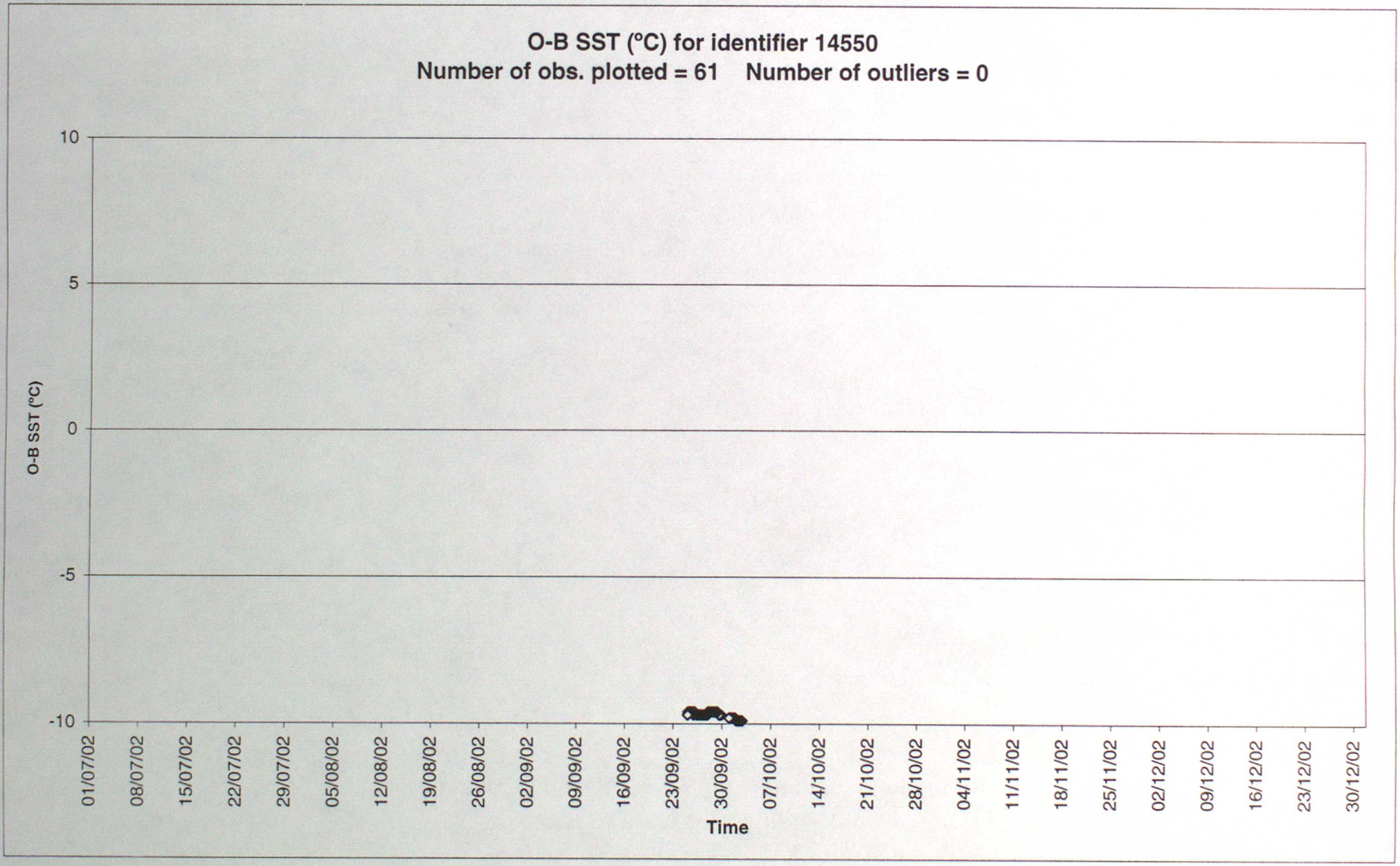

O-B SST (°C) for identifier 13501
Number of obs. plotted = 75   Number of outliers = 0

O-B SST (°C) for identifier 13504
Number of obs. plotted = 147   Number of outliers = 0

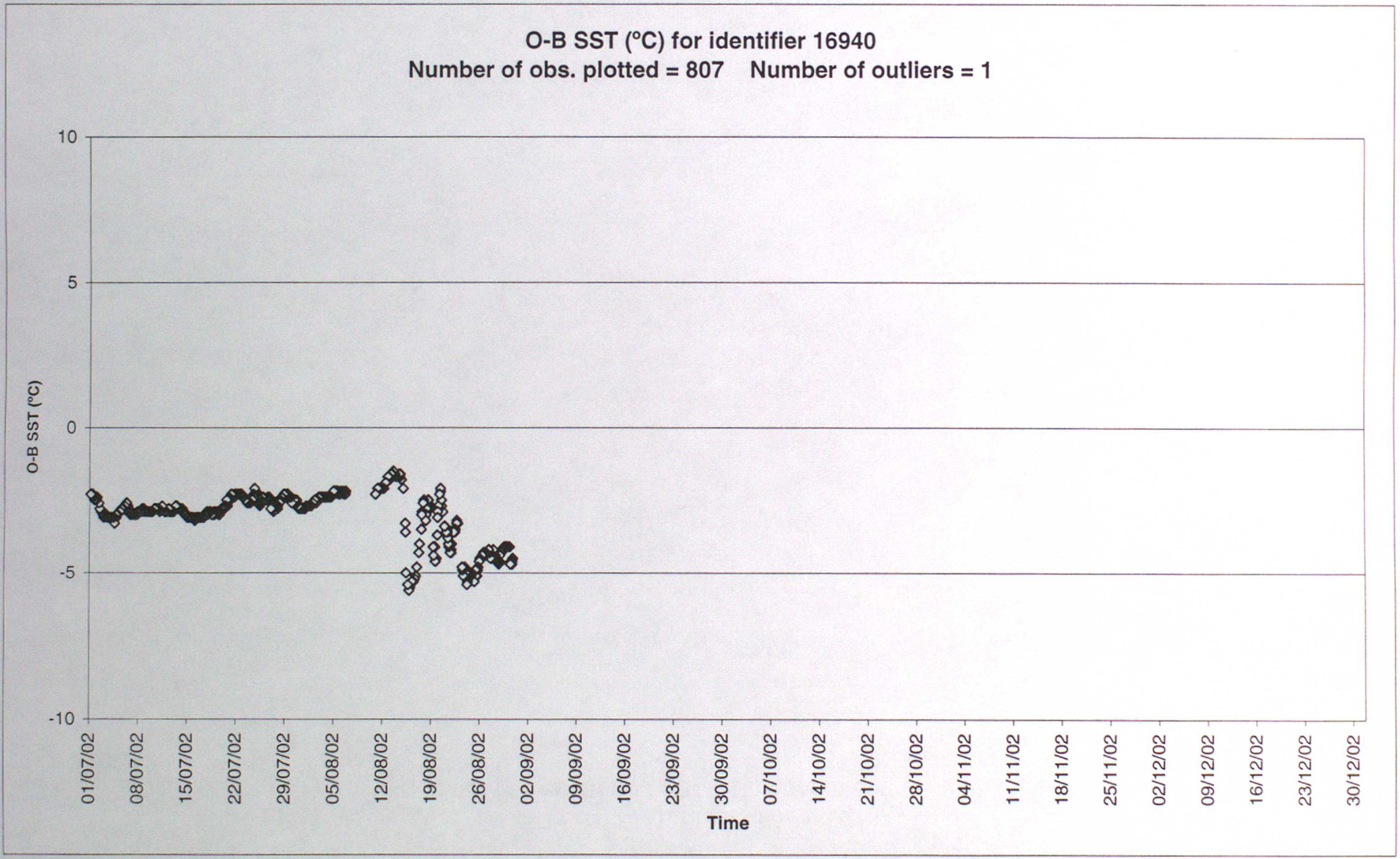


O-B SST (°C) for identifier 13508
Number of obs. plotted = 68   Number of outliers = 0

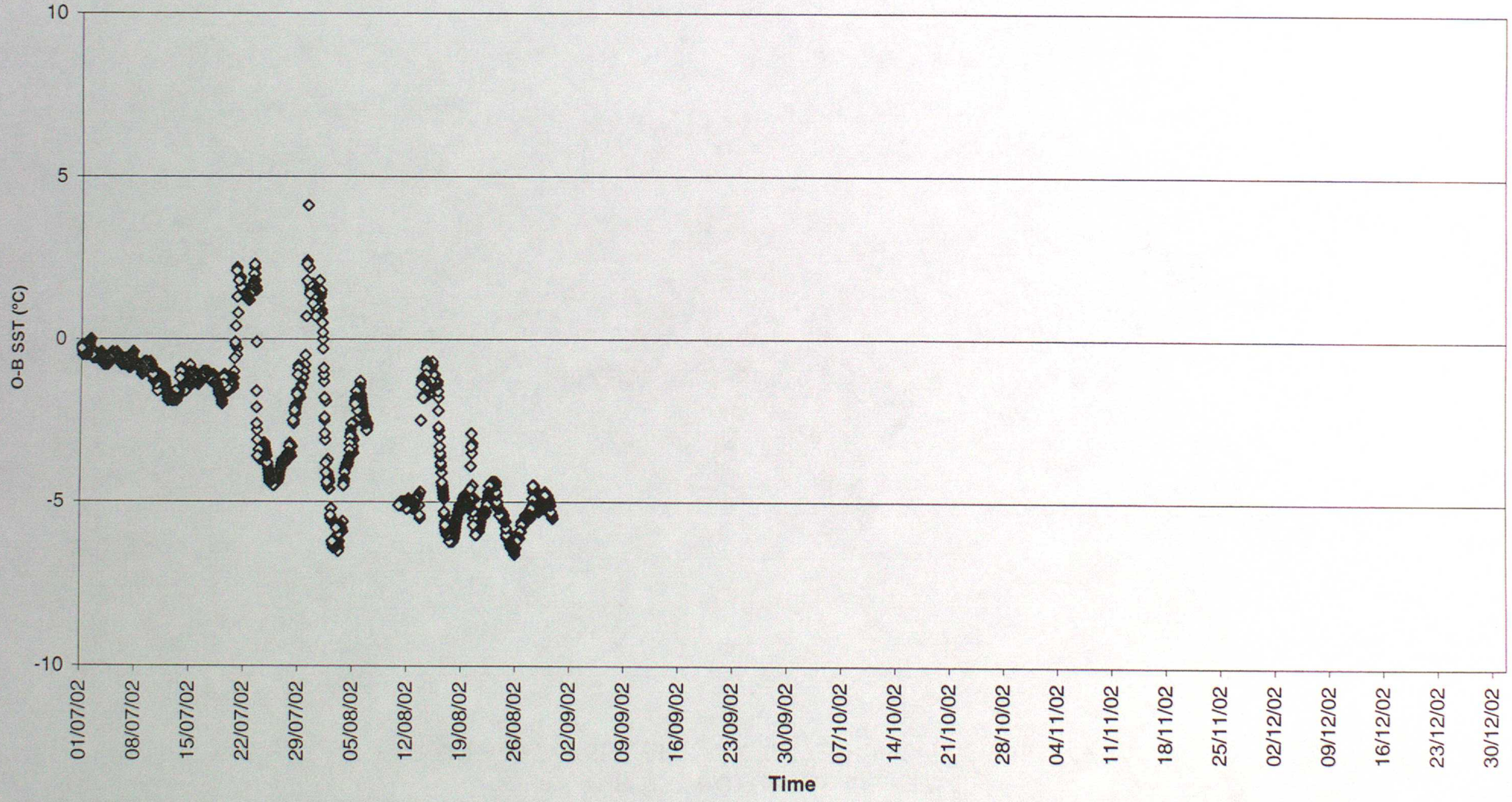


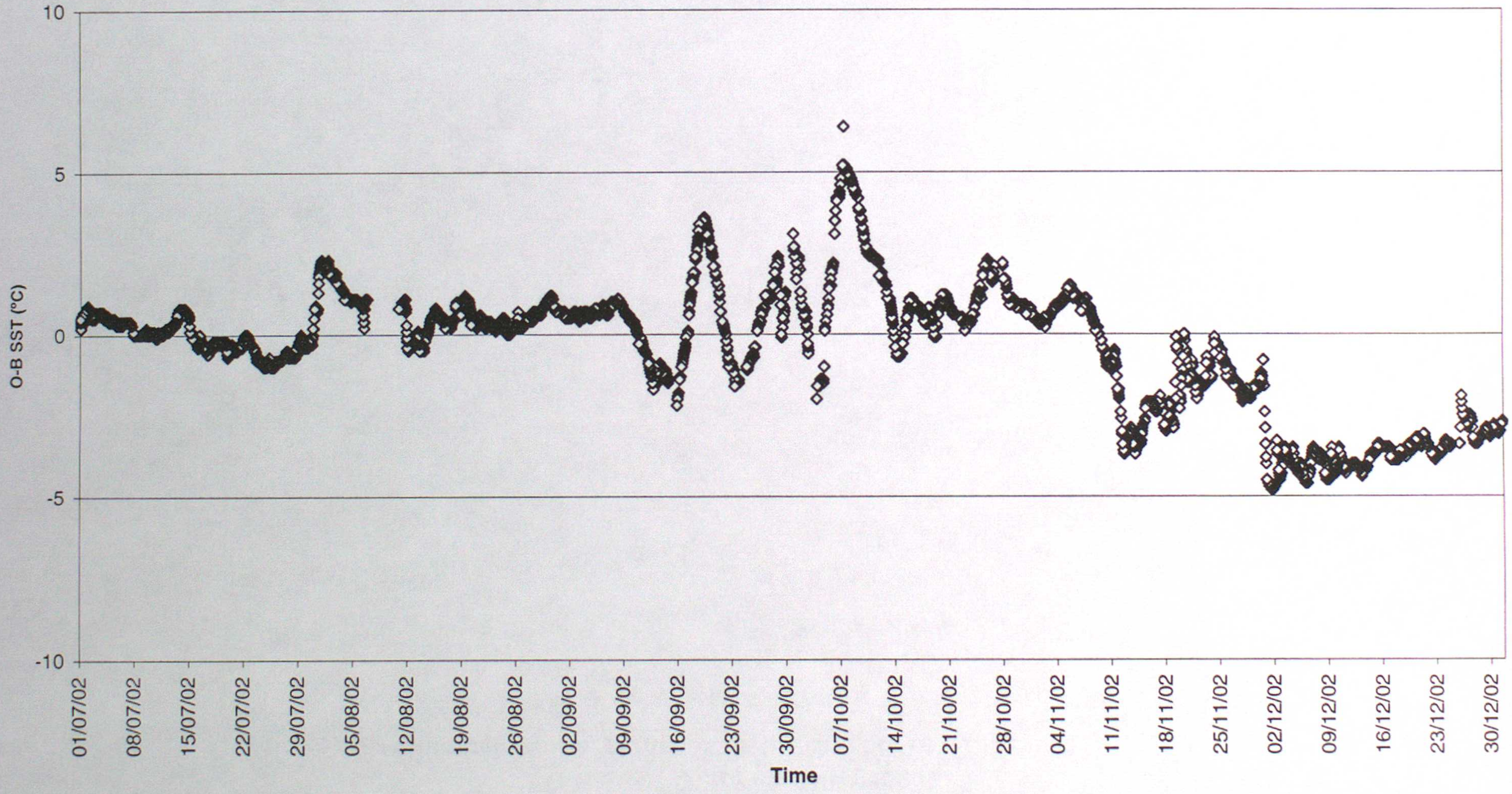


O-B SST (ºC) for identifier 14550
Number of obs. plotted = 61   Number of outliers = 0

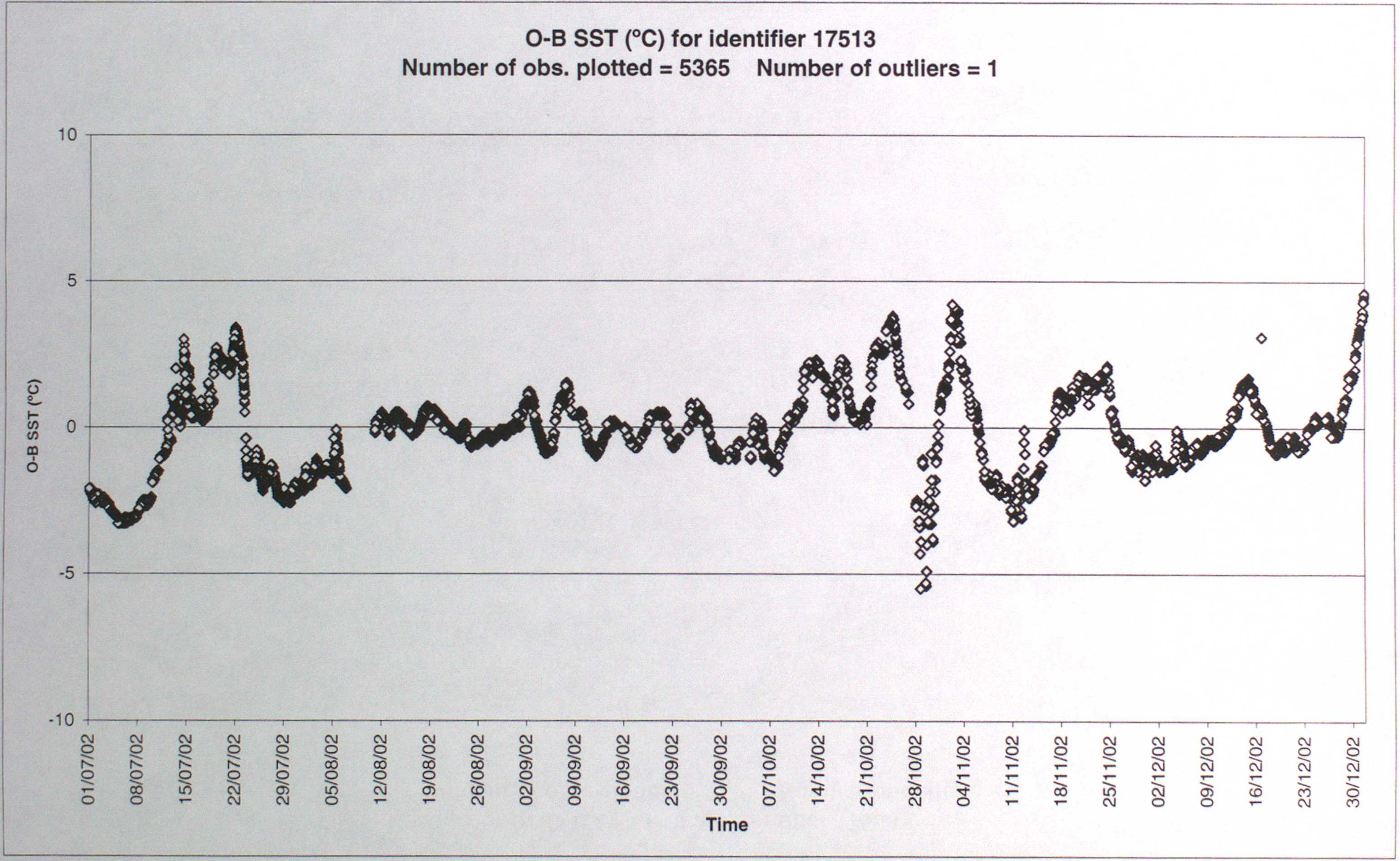

O-B SST (°C) for identifier 16940
Number of obs. plotted = 807 Number of outliers = 1
O-B SST (°C)
10
5
0
-5
-10
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

O-B SST (°C) for identifier 16942
Number of obs. plotted = 1310   Number of outliers = 0



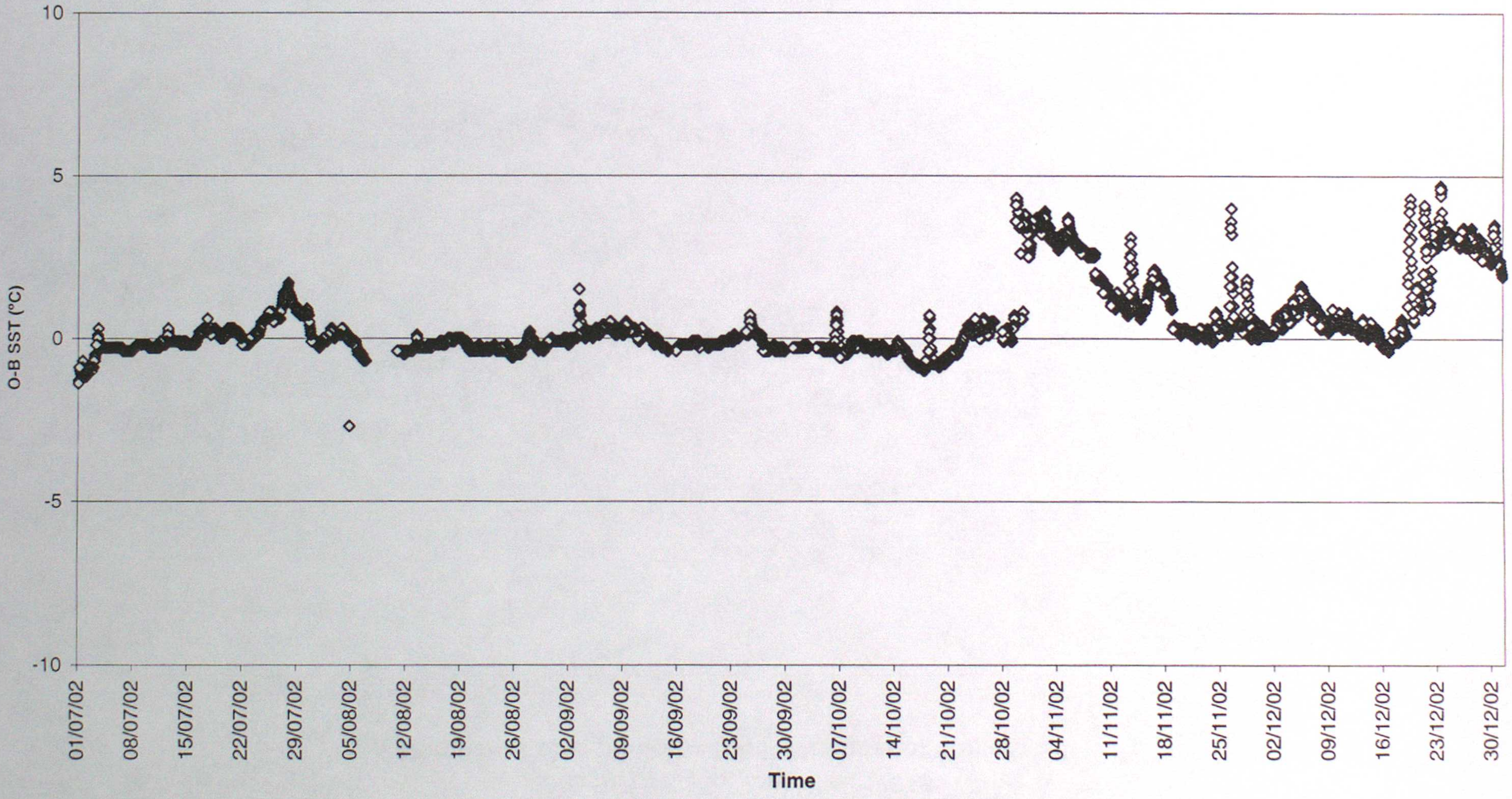


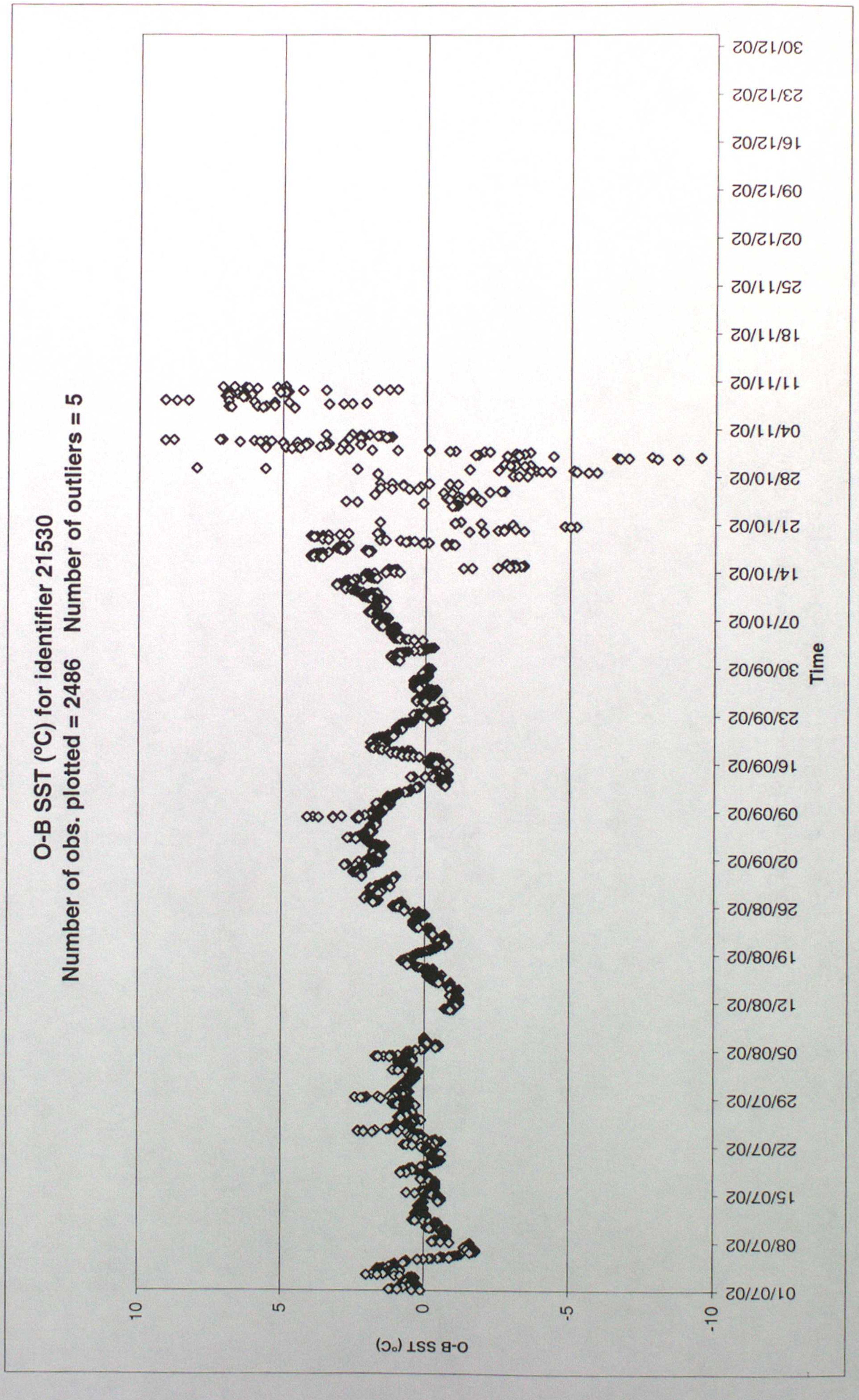
O-B SST (°C) for identifier 17510
Number of obs. plotted = 4617   Number of outliers = 0



O-B SST (ºC) for identifier 17513
Number of obs. plotted = 5365   Number of outliers = 1

O-B SST (°C) for identifier 17563
Number of obs. plotted = 3920   Number of outliers = 0

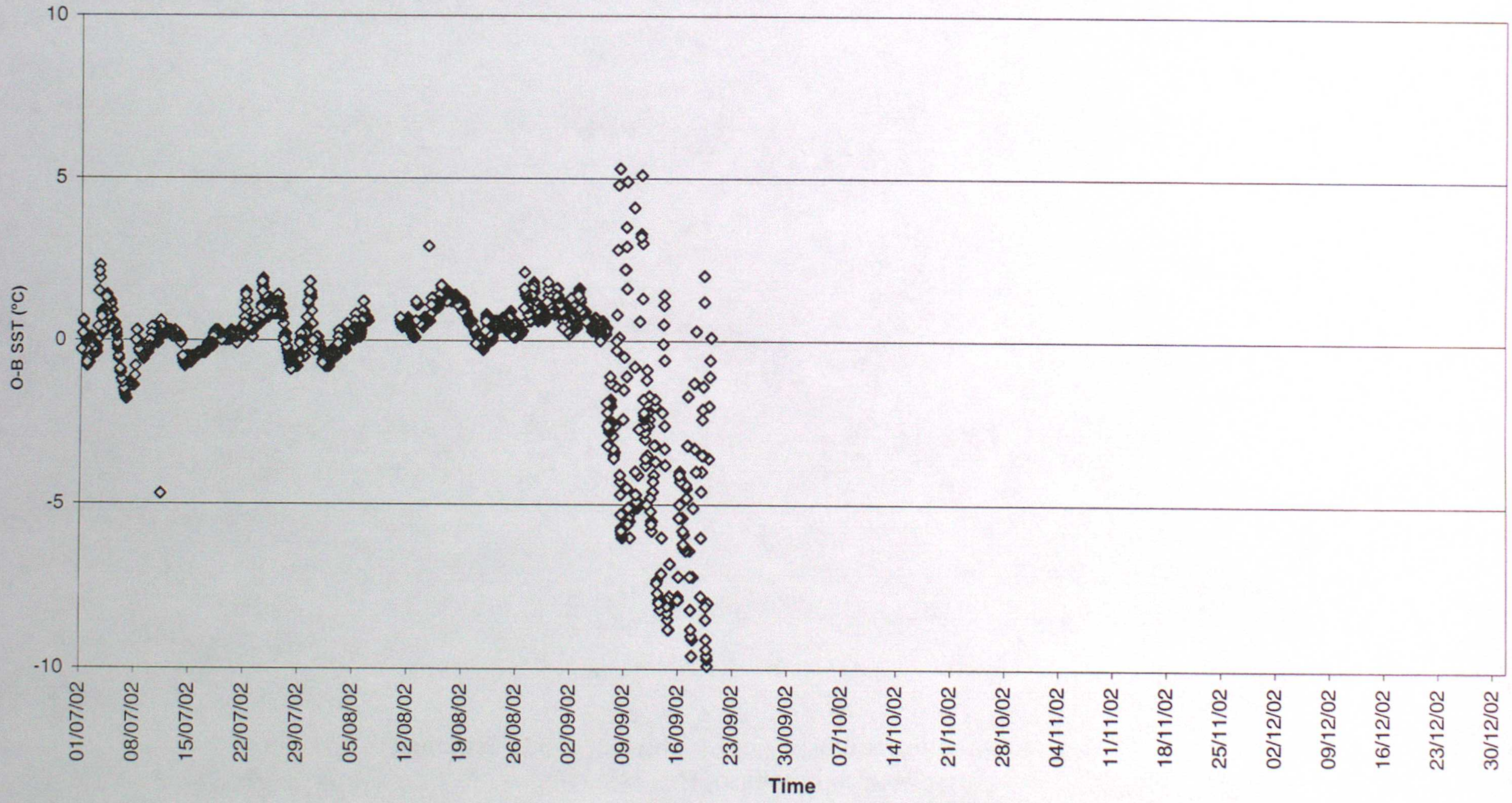


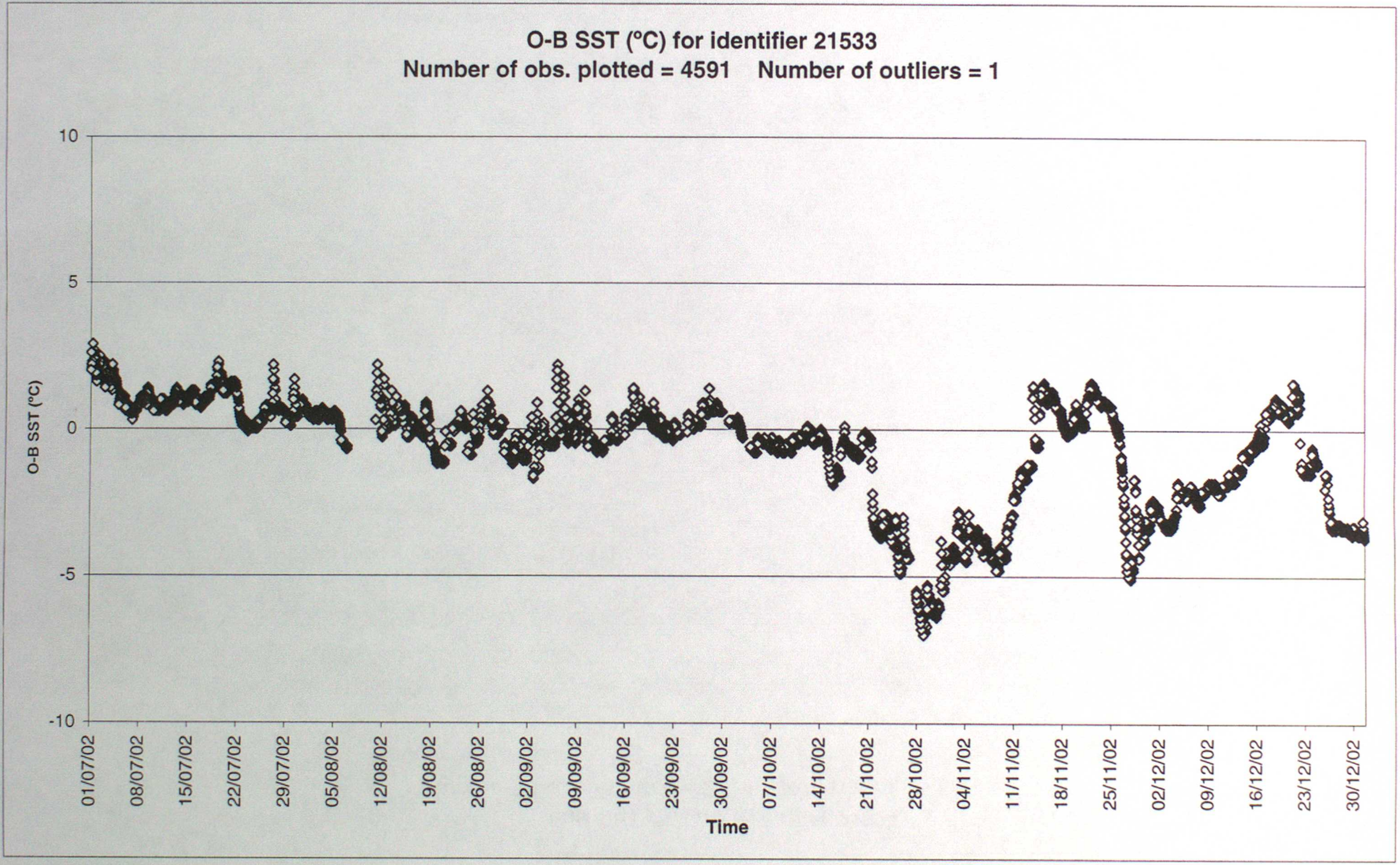


O-B SST (°C) for identifier 21530

Number of obs. plotted = 2486   Number of outliers = 5

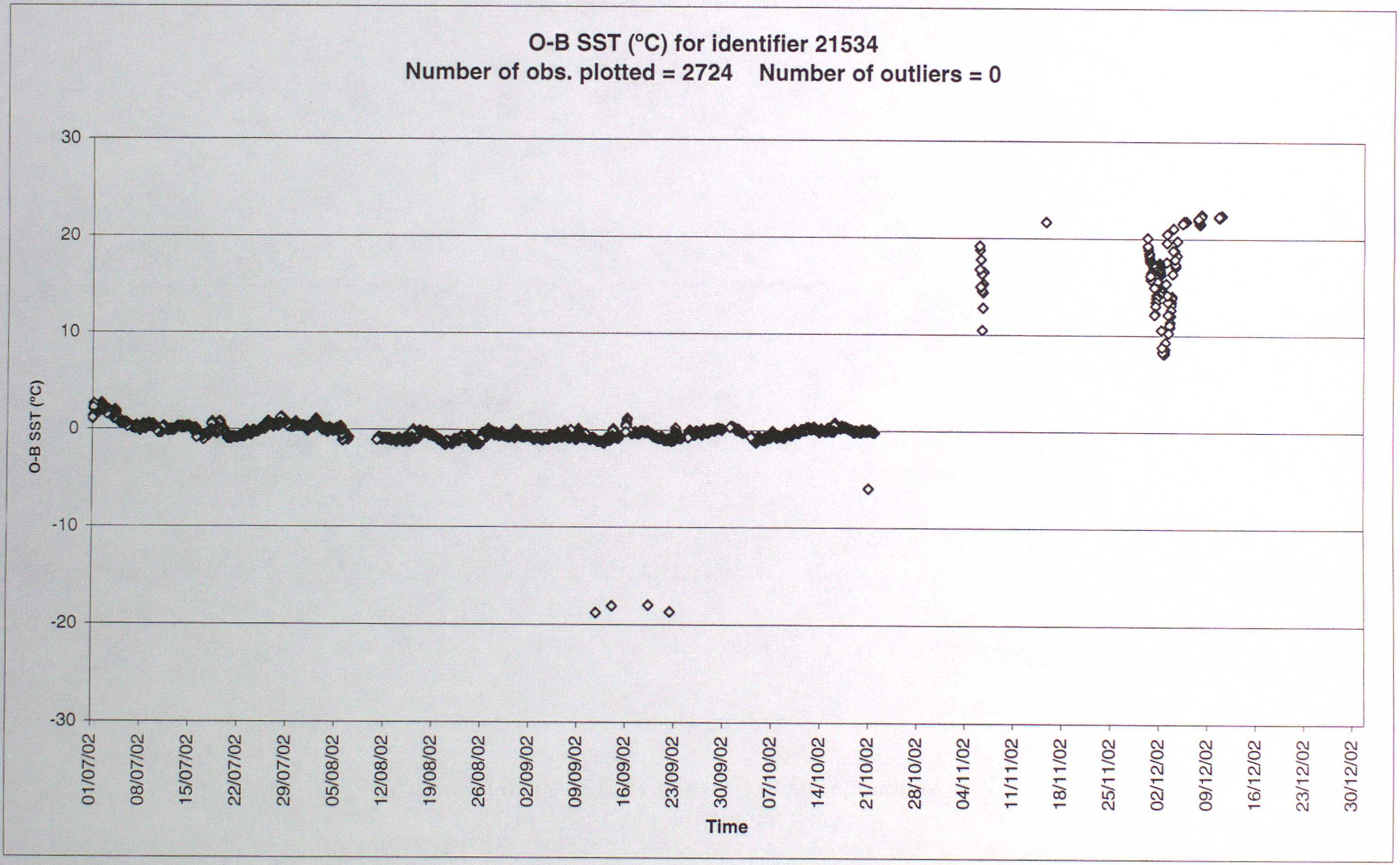
O-B SST (°C) for identifier 21531
Number of obs. plotted = 1708   Number of outliers = 10



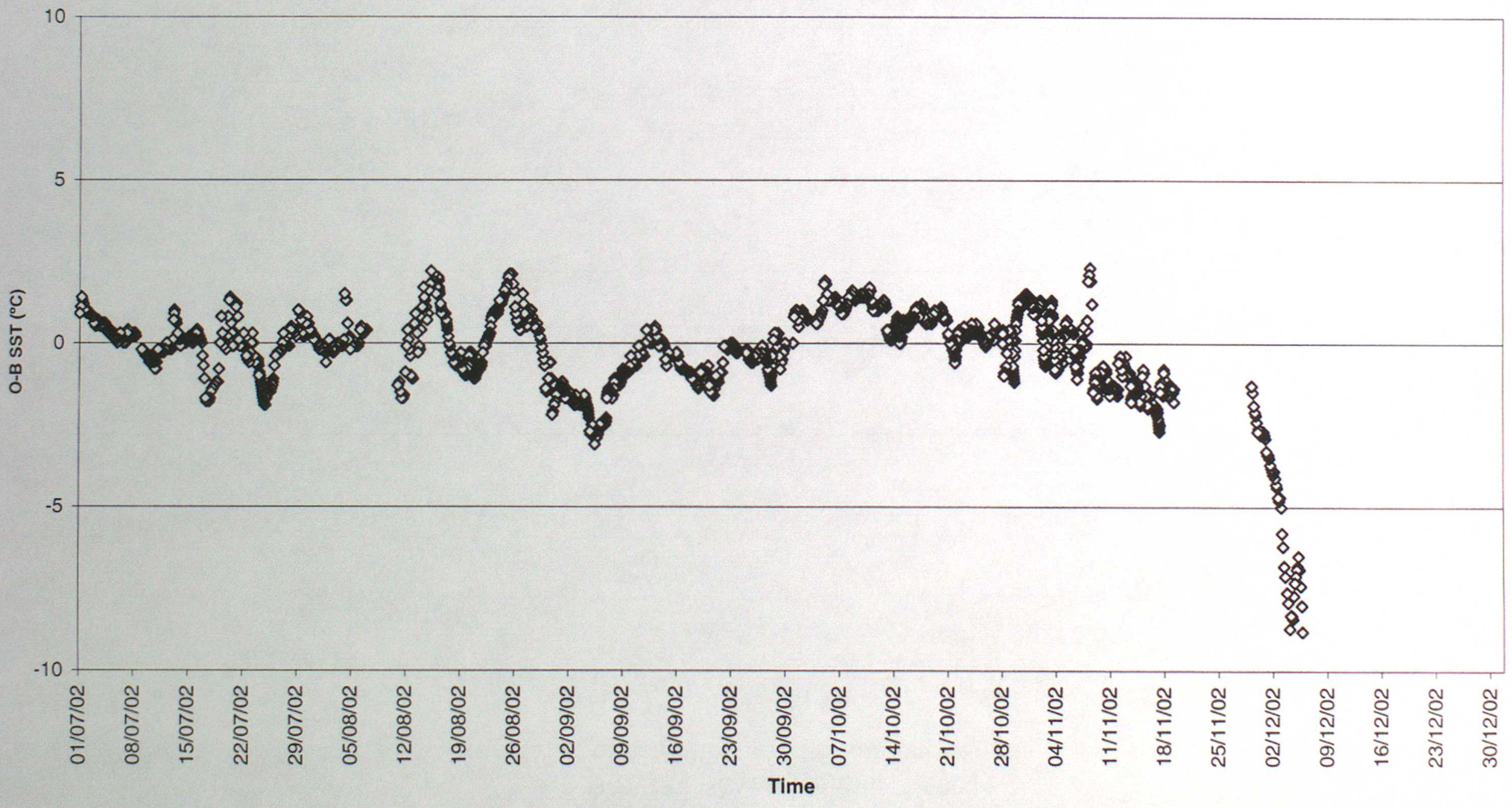


O-B SST (°C) for identifier 21533

Number of obs. plotted = 4591   Number of outliers = 1

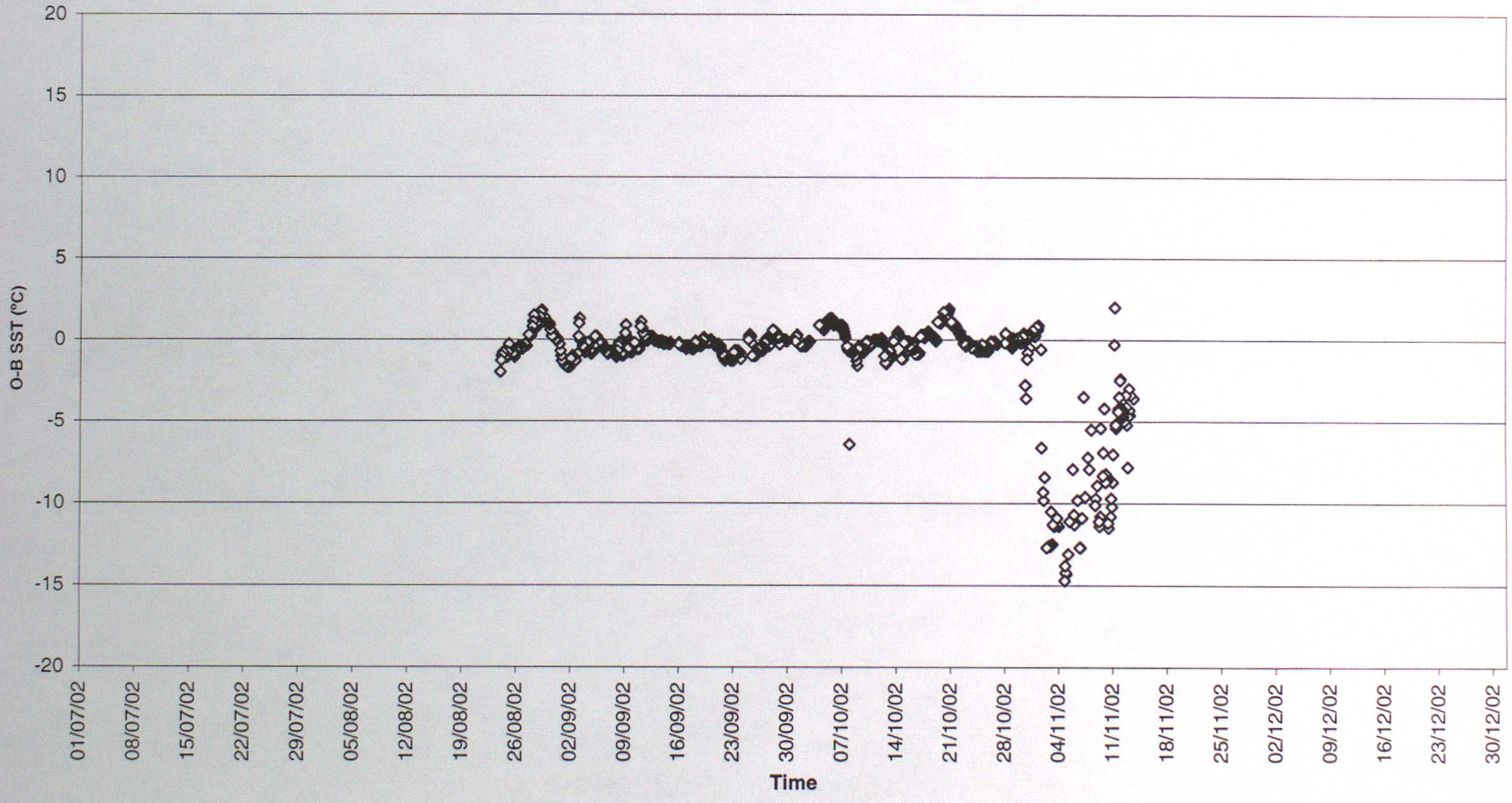


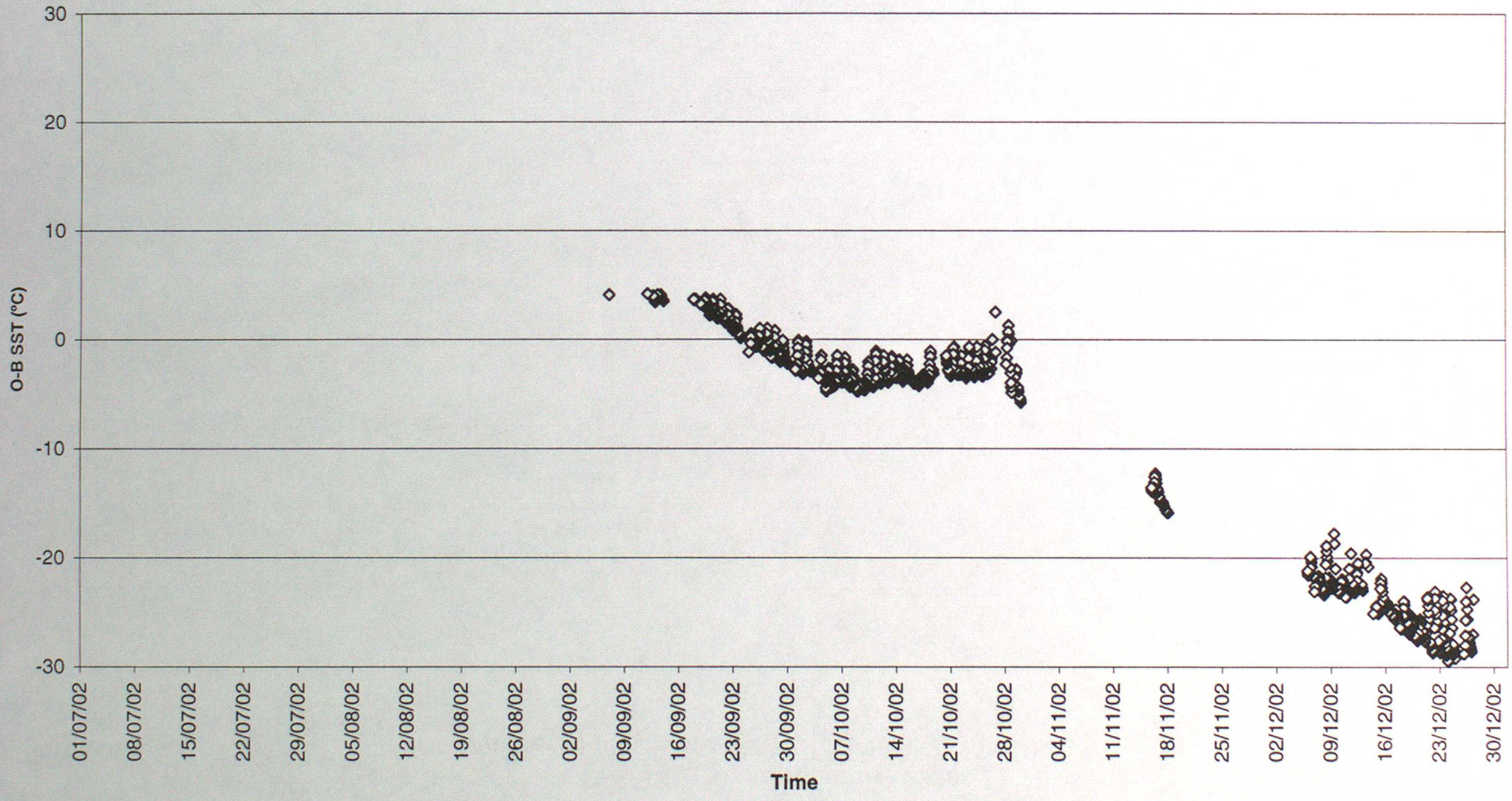
O-B SST (°C) for identifier 21534
Number of obs. plotted = 2724   Number of outliers = 0



O-B SST (ºC) for identifier 21640
Number of obs. plotted = 1807   Number of outliers = 2

O-B SST (°C) for identifier 22903
Number of obs. plotted = 741   Number of outliers = 0

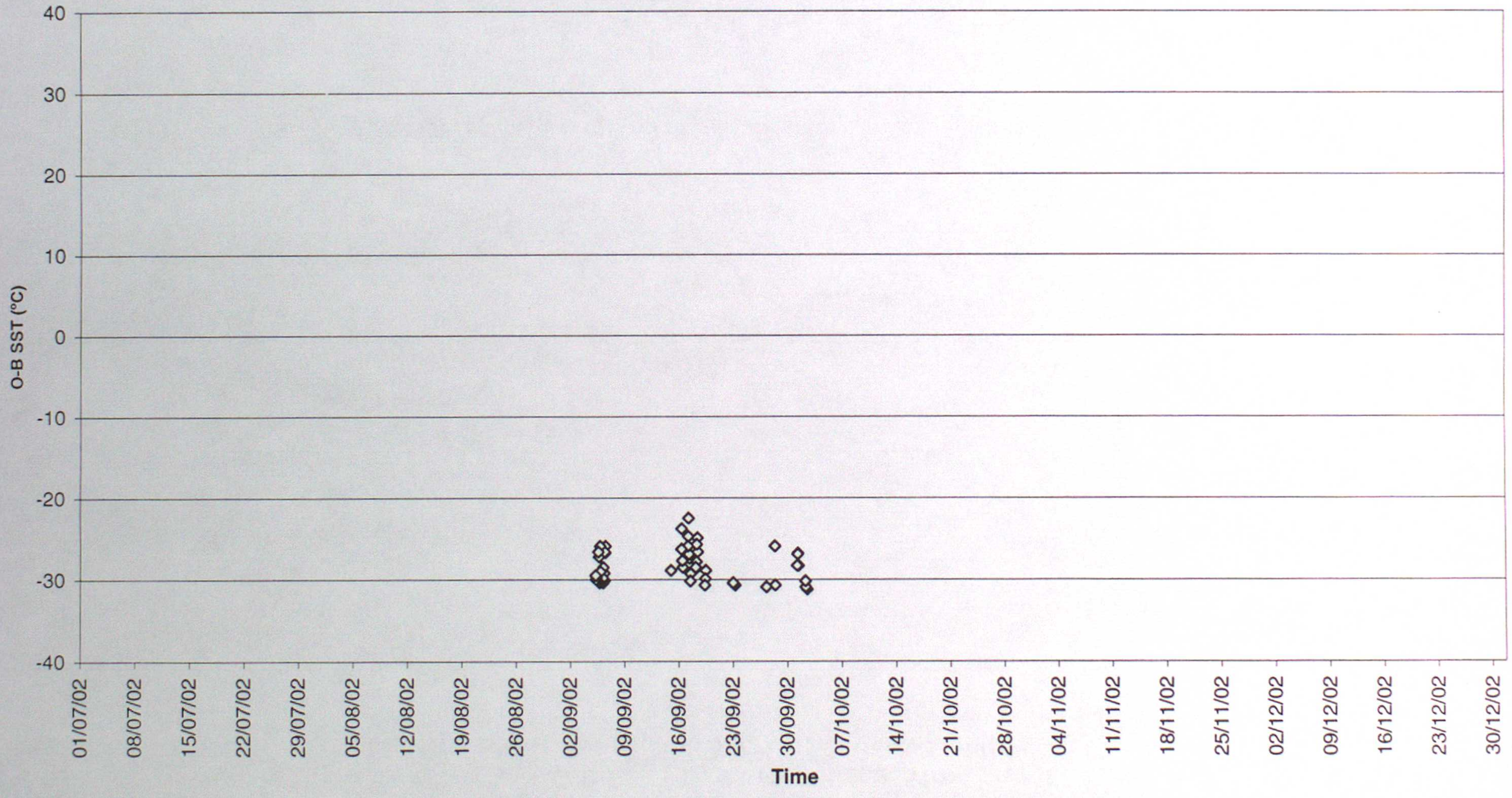


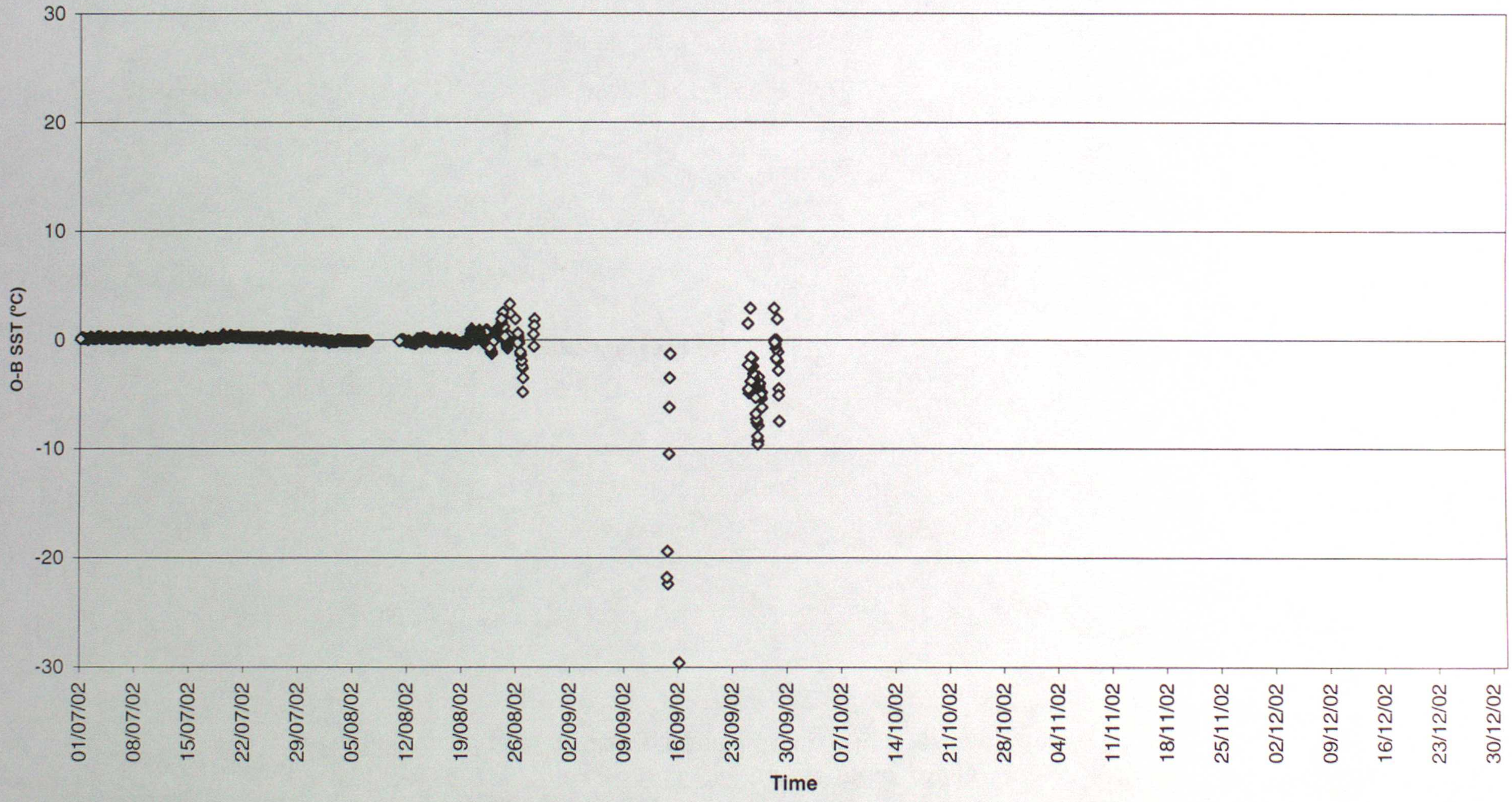


O-B SST (°C) for identifier 23510

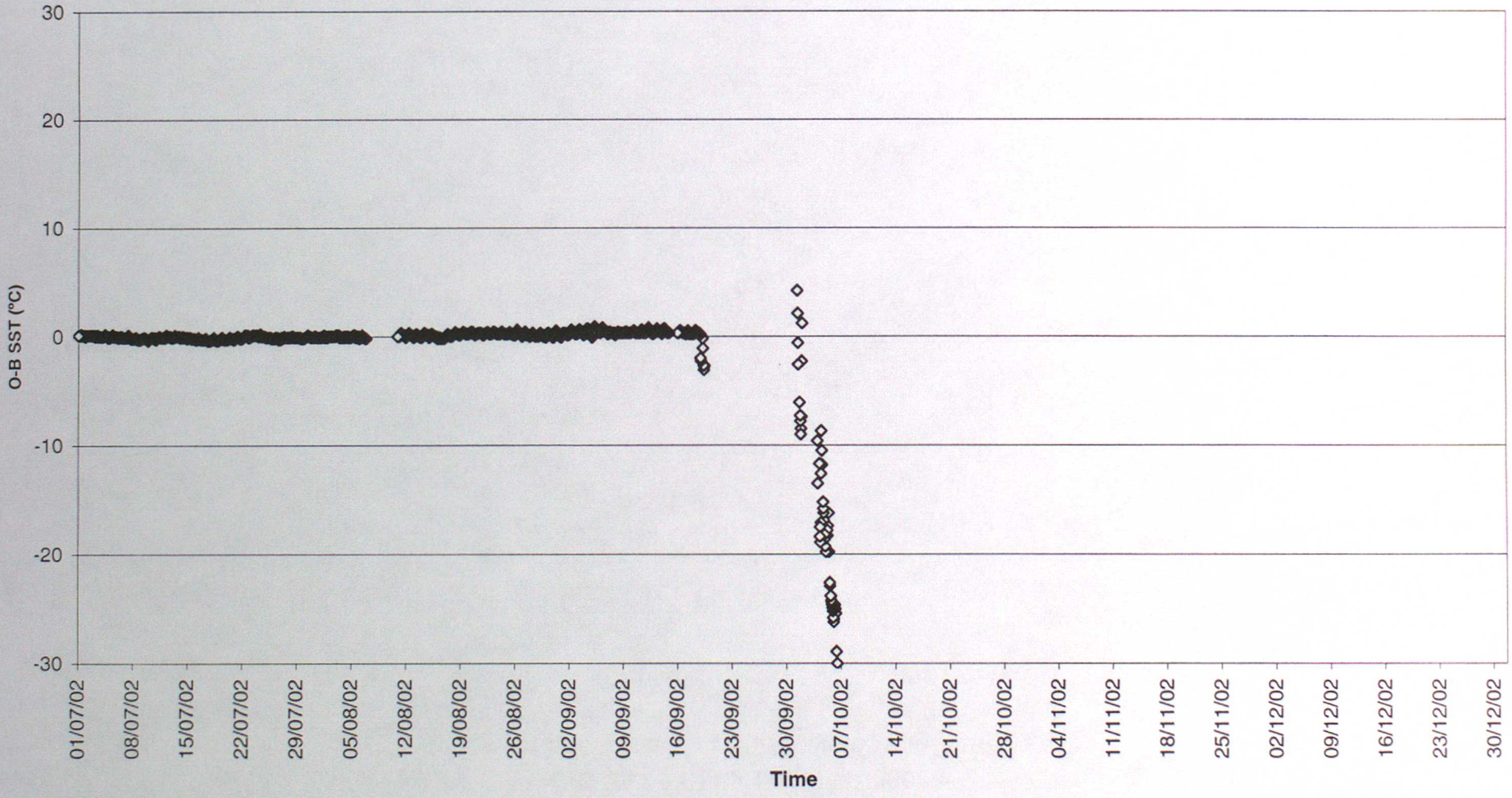
Number of obs. plotted = 967   Number of outliers = 0

O-B SST (°C) for identifier 23591
Number of obs. plotted = 52   Number of outliers = 0





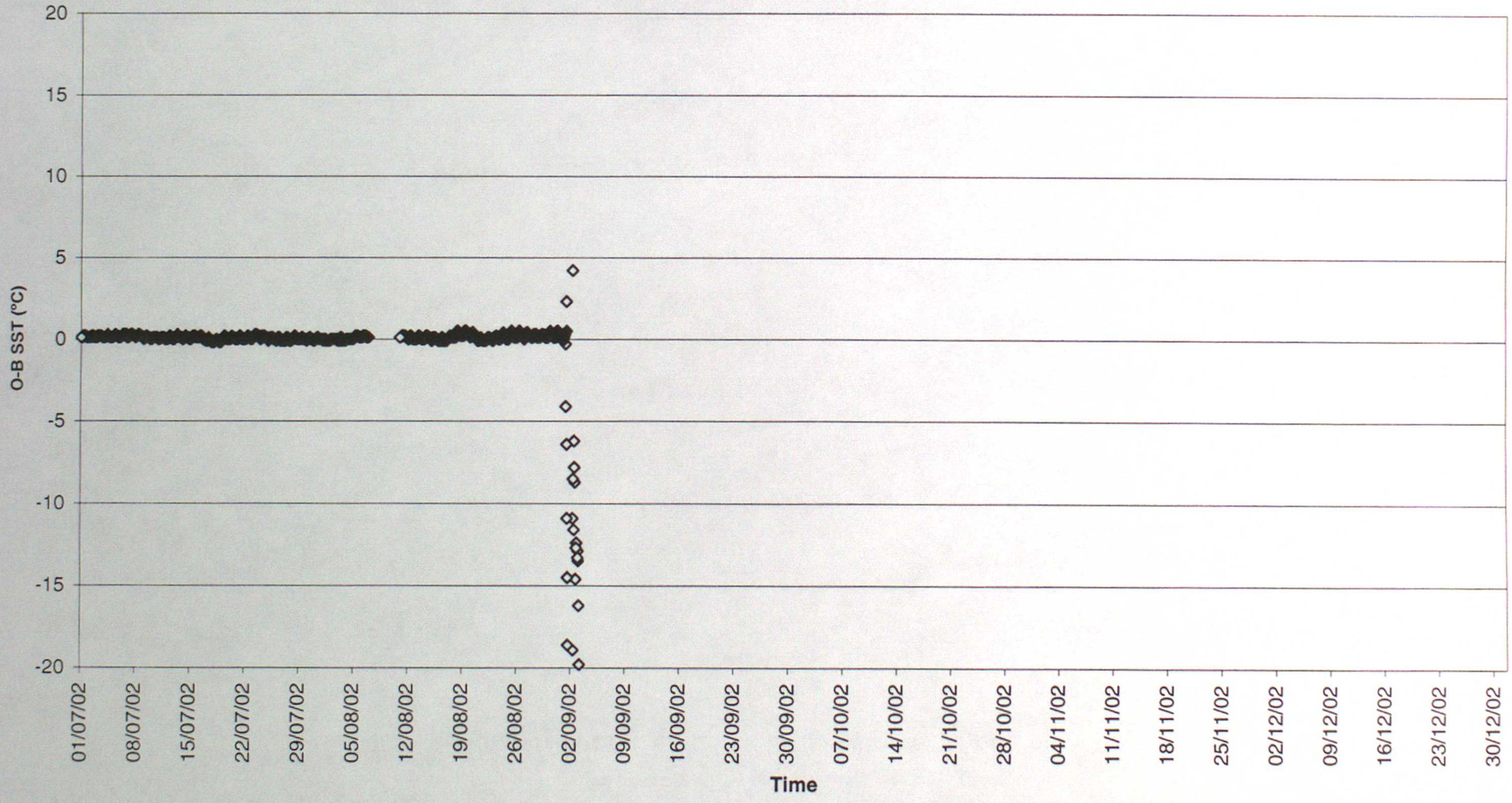
O-B SST (°C) for identifier 23638
Number of obs. plotted = 1367   Number of outliers = 1



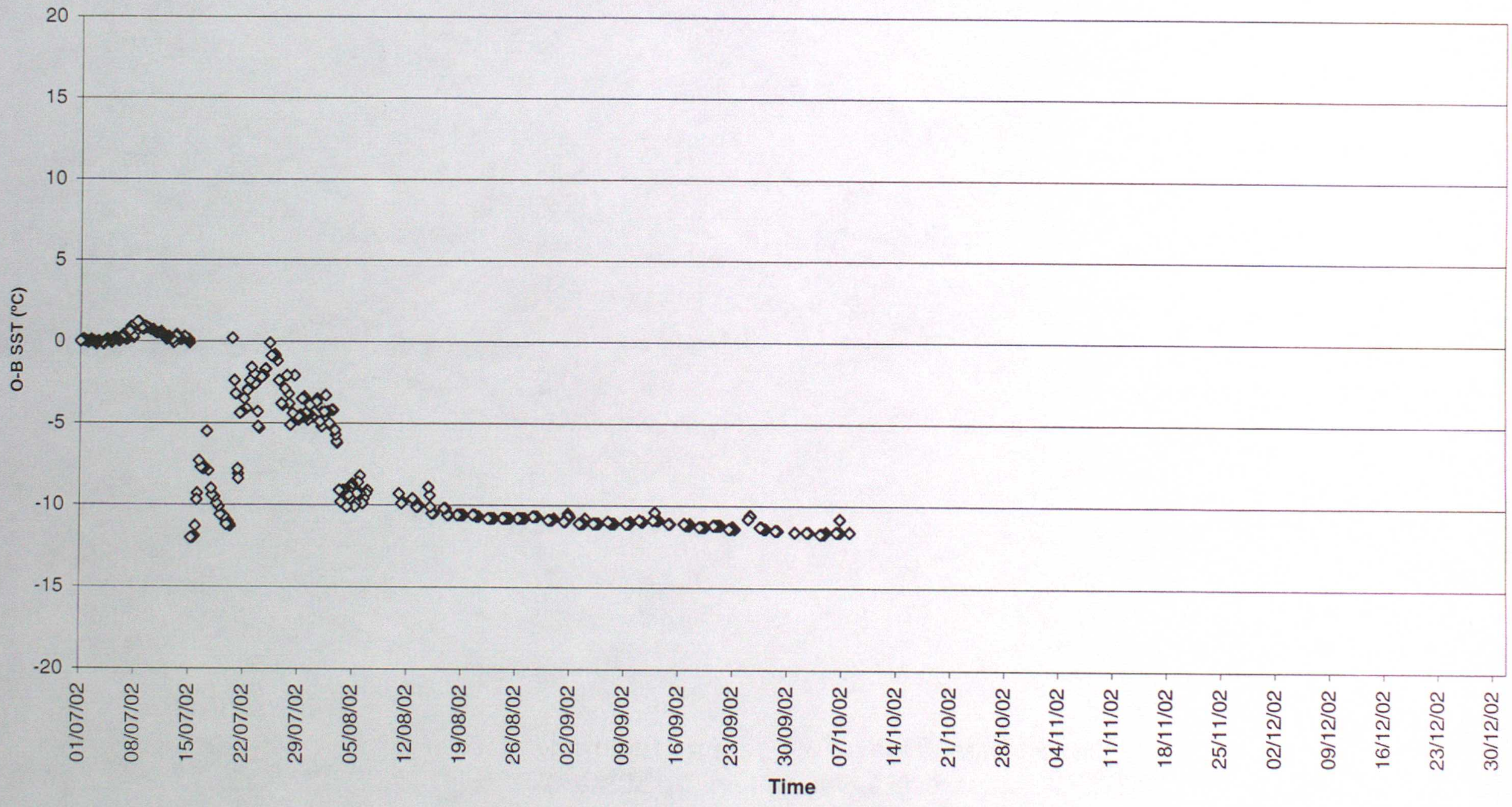
O-B SST (°C) for identifier 23645

Number of obs. plotted = 1990   Number of outliers = 2

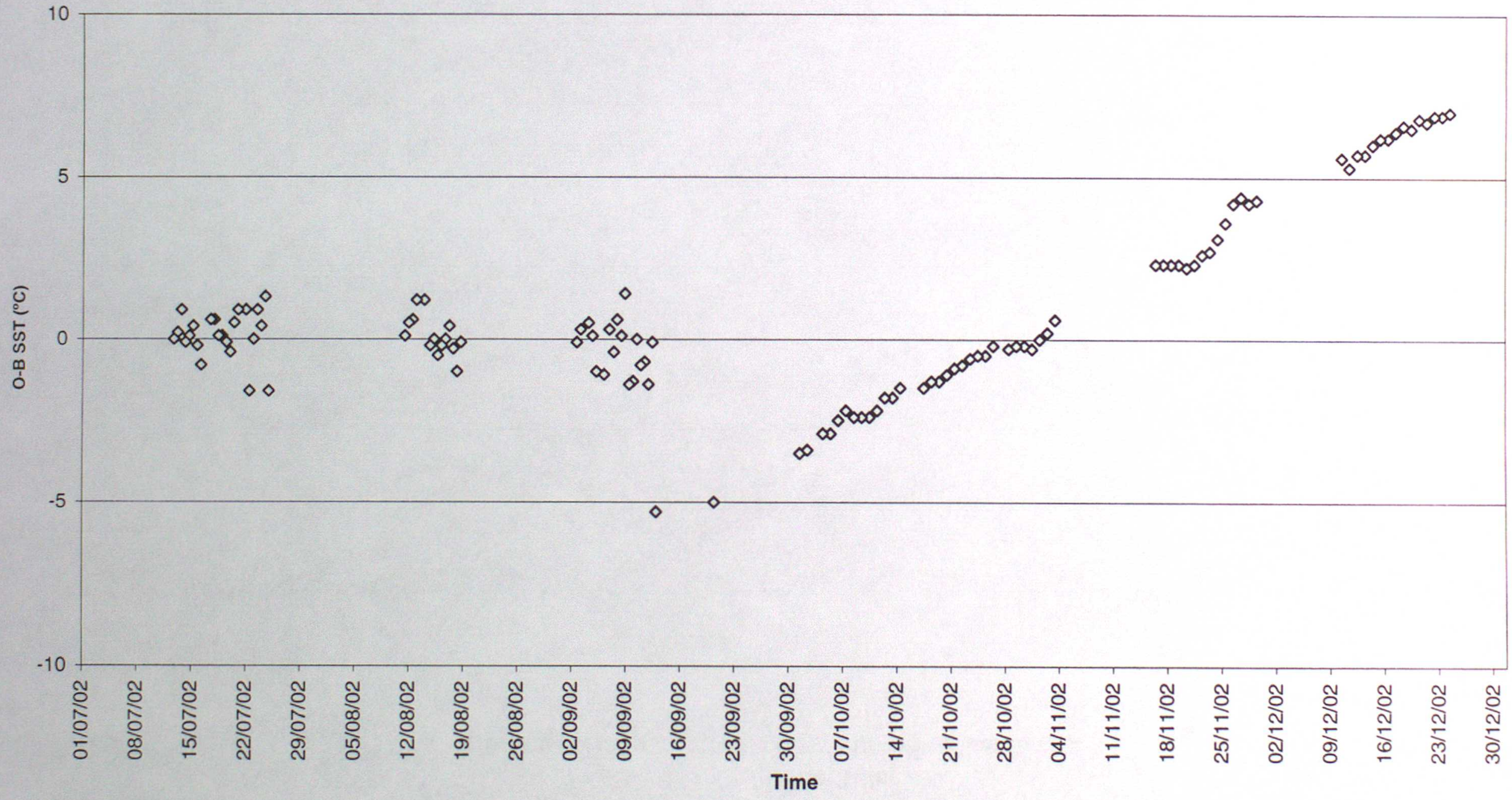
O-B SST (°C) for identifier 23650
Number of obs. plotted = 1494   Number of outliers = 11

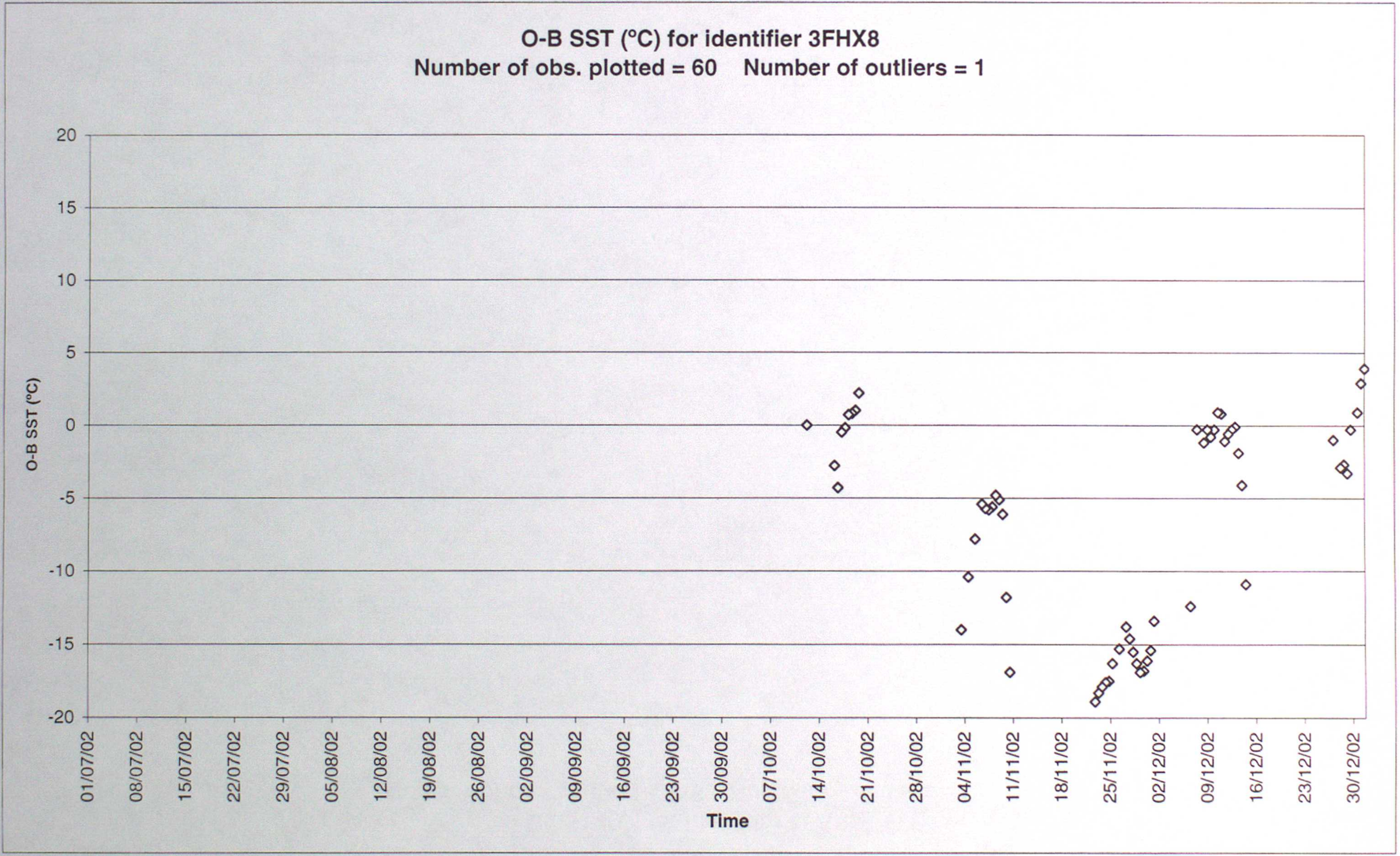


O-B SST (°C) for identifier 23949
Number of obs. plotted = 381   Number of outliers = 0



O-B SST (°C) for identifier 3FAP5
Number of obs. plotted = 116   Number of outliers = 2

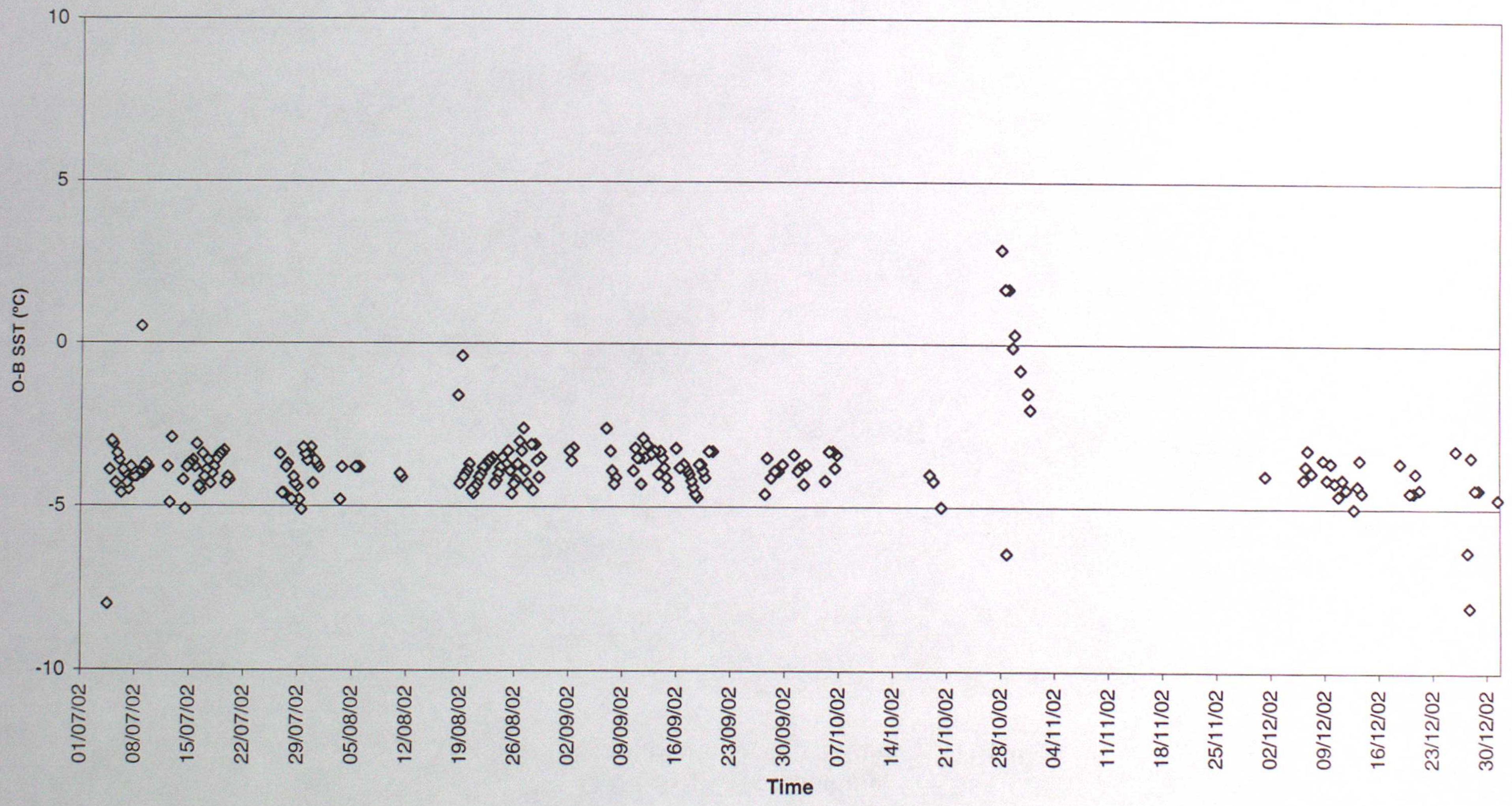




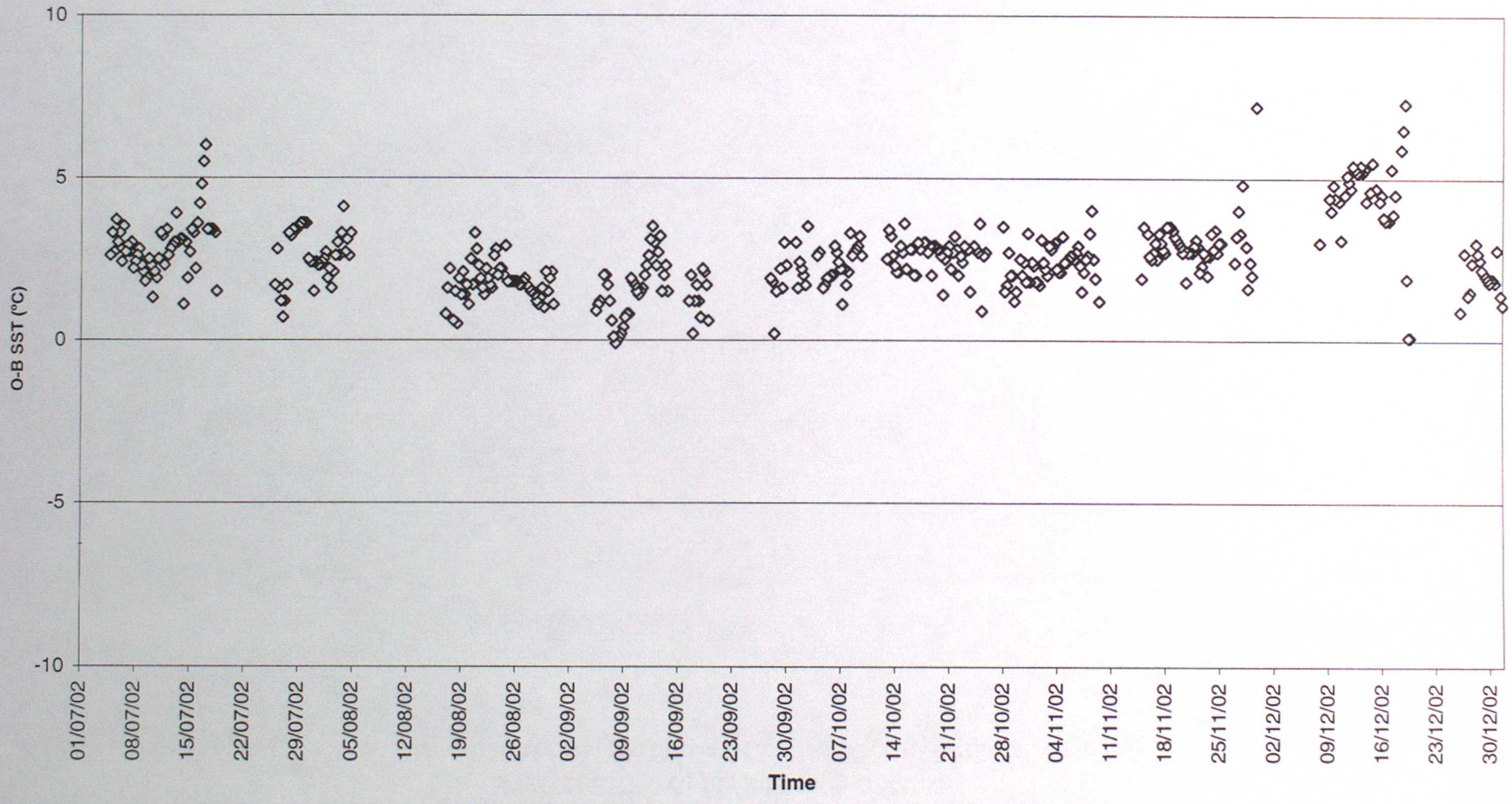
O-B SST (°C) for identifier 3FHX8

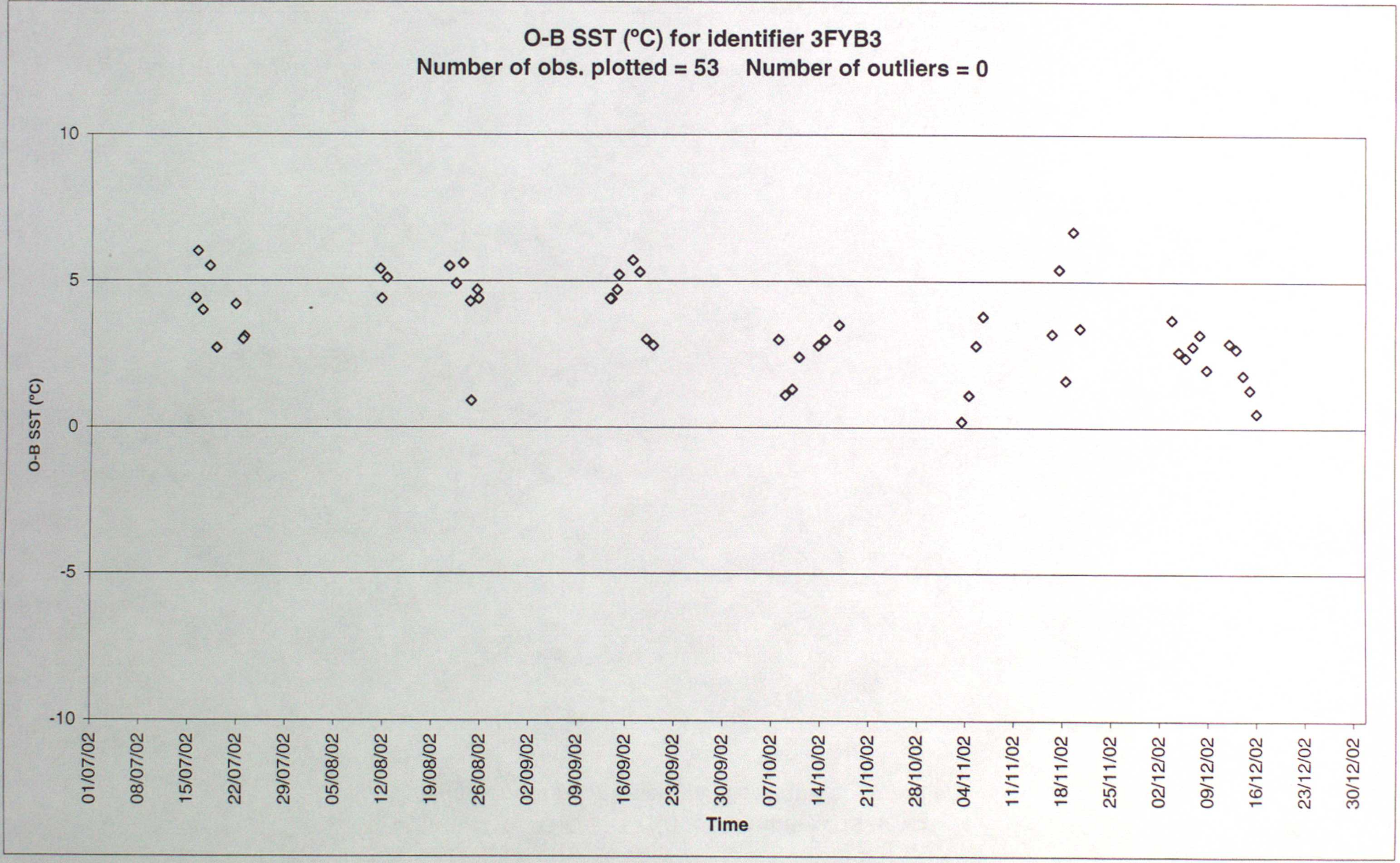
Number of obs. plotted = 60   Number of outliers = 1

O-B SST (°C) for identifier 3FMM6
Number of obs. plotted = 215   Number of outliers = 0

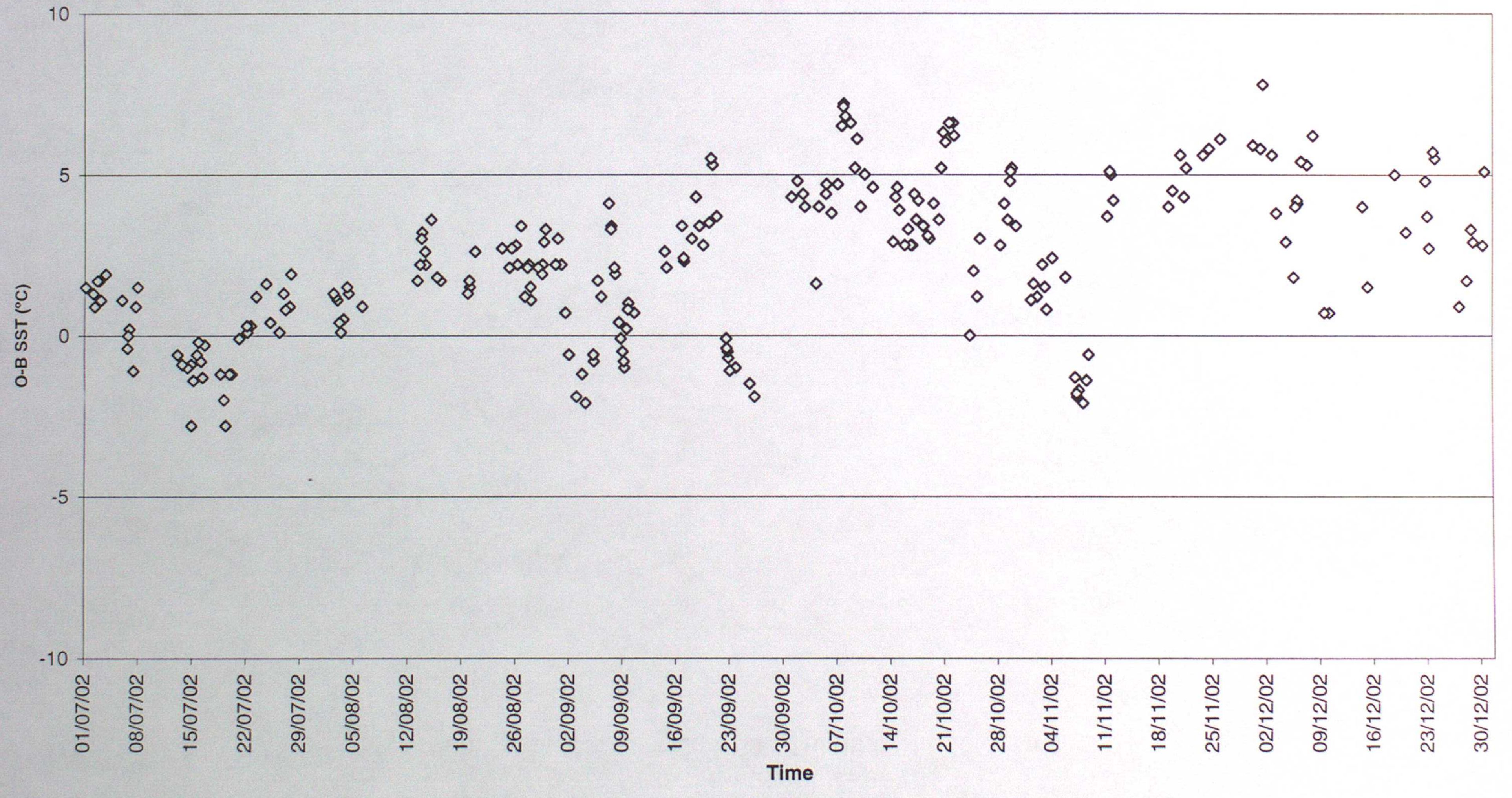


O-B SST (°C) for identifier 3FRR5
Number of obs. plotted = 440   Number of outliers = 0

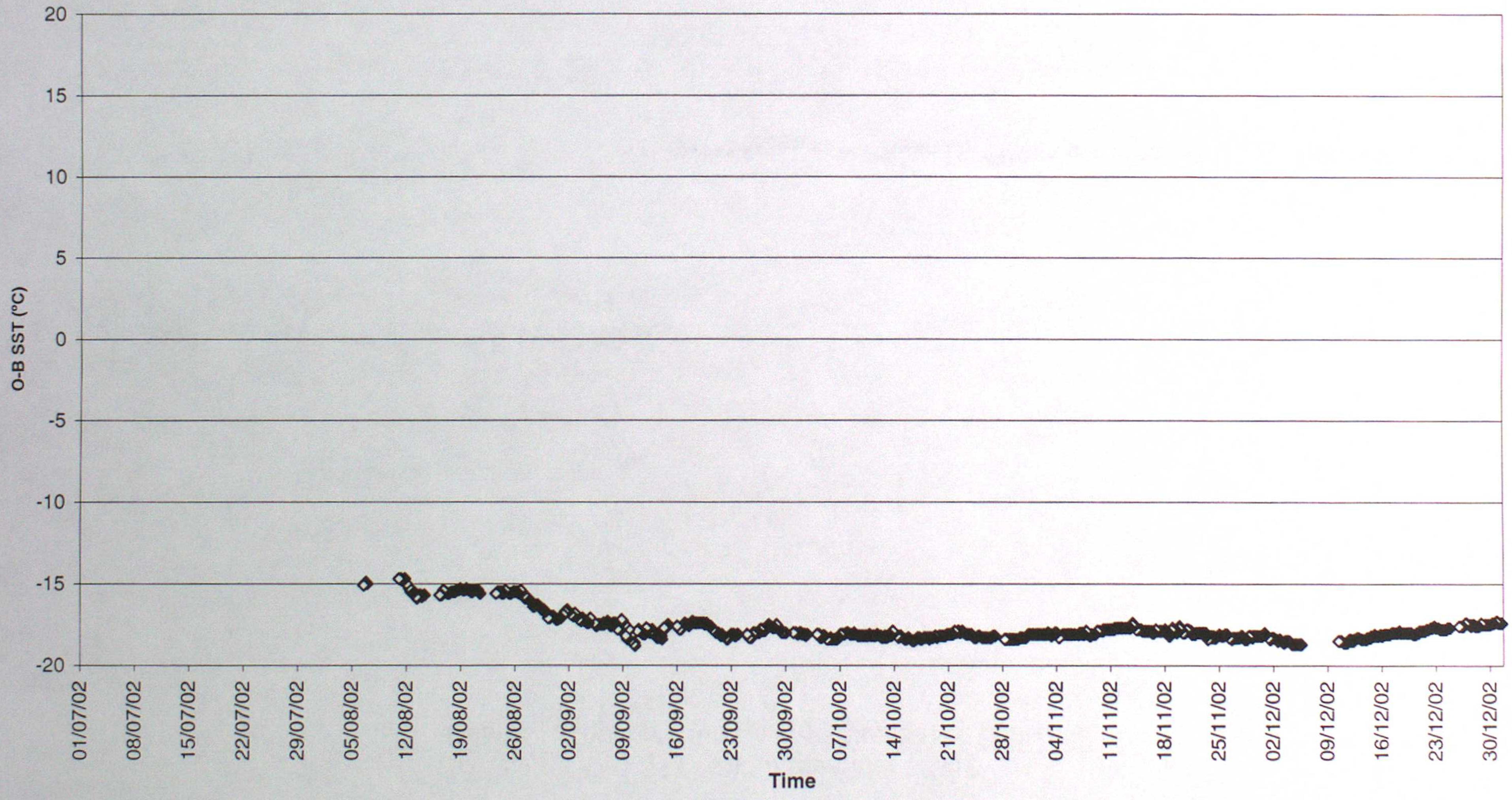


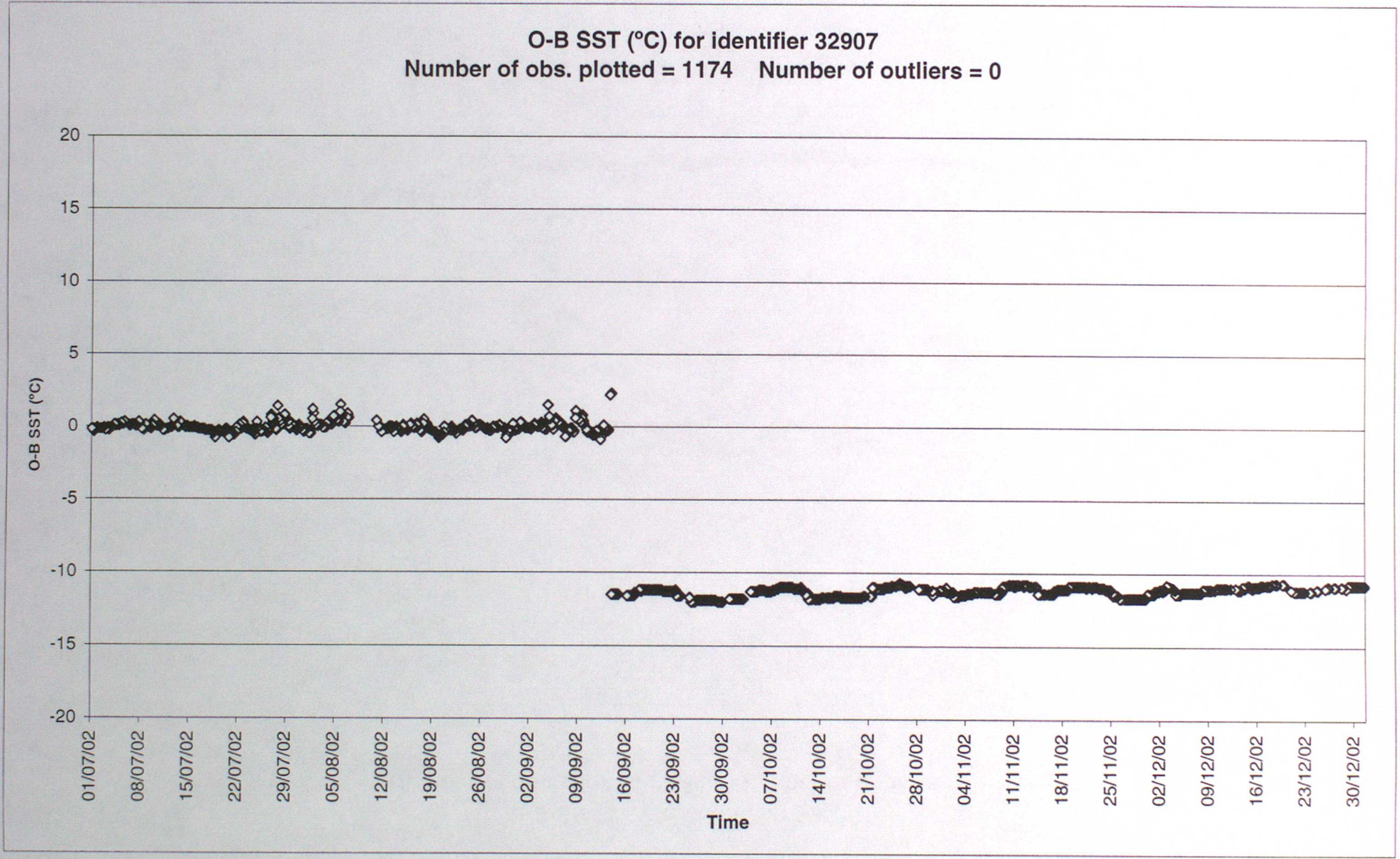


O-B SST (ºC) for identifier 3FYB3
Number of obs. plotted = 53   Number of outliers = 0

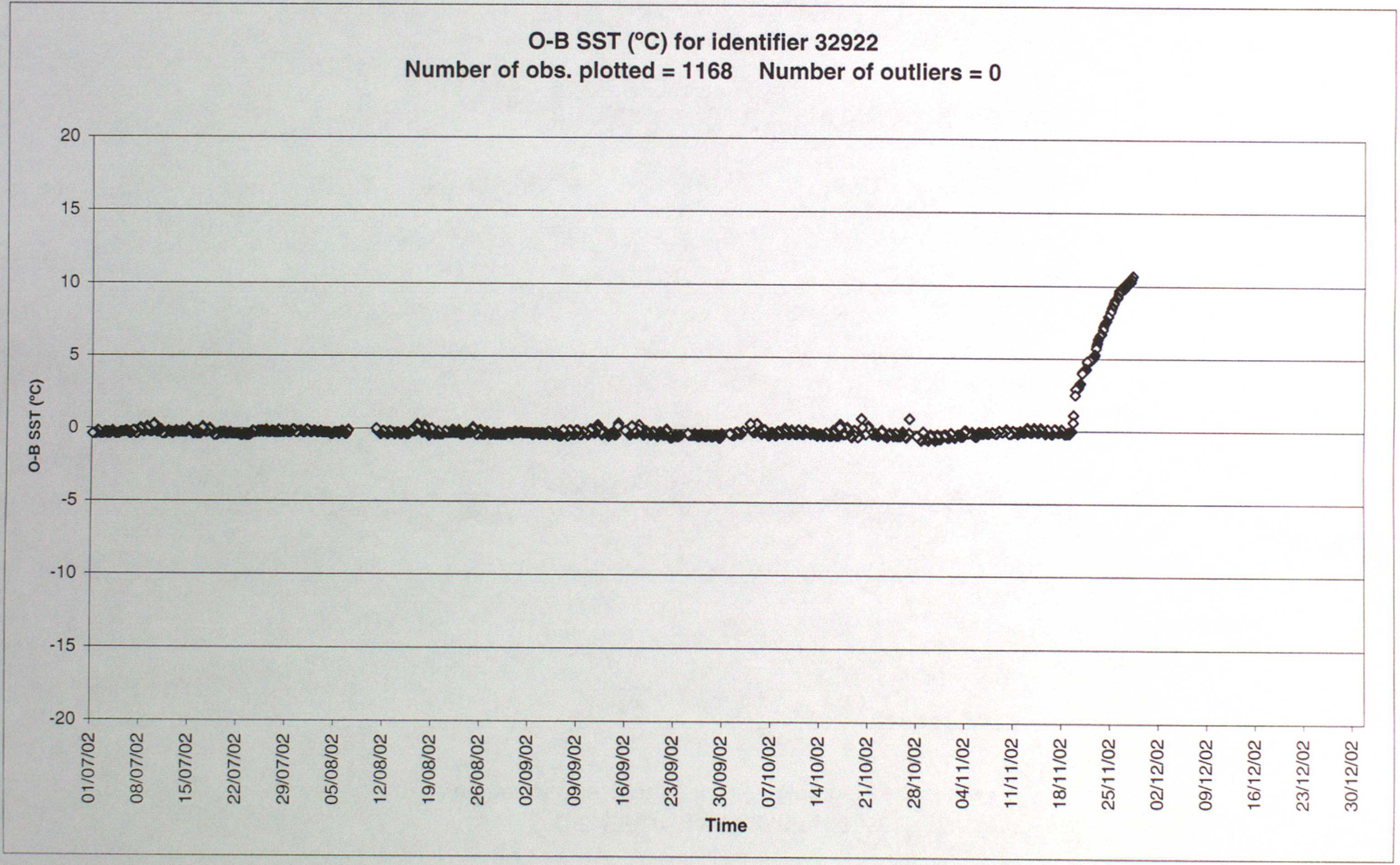

O-B SST (°C) for identifier 31975
Number of obs. plotted = 238   Number of outliers = 0

O-B SST (°C) for identifier 32526
Number of obs. plotted = 884   Number of outliers = 0





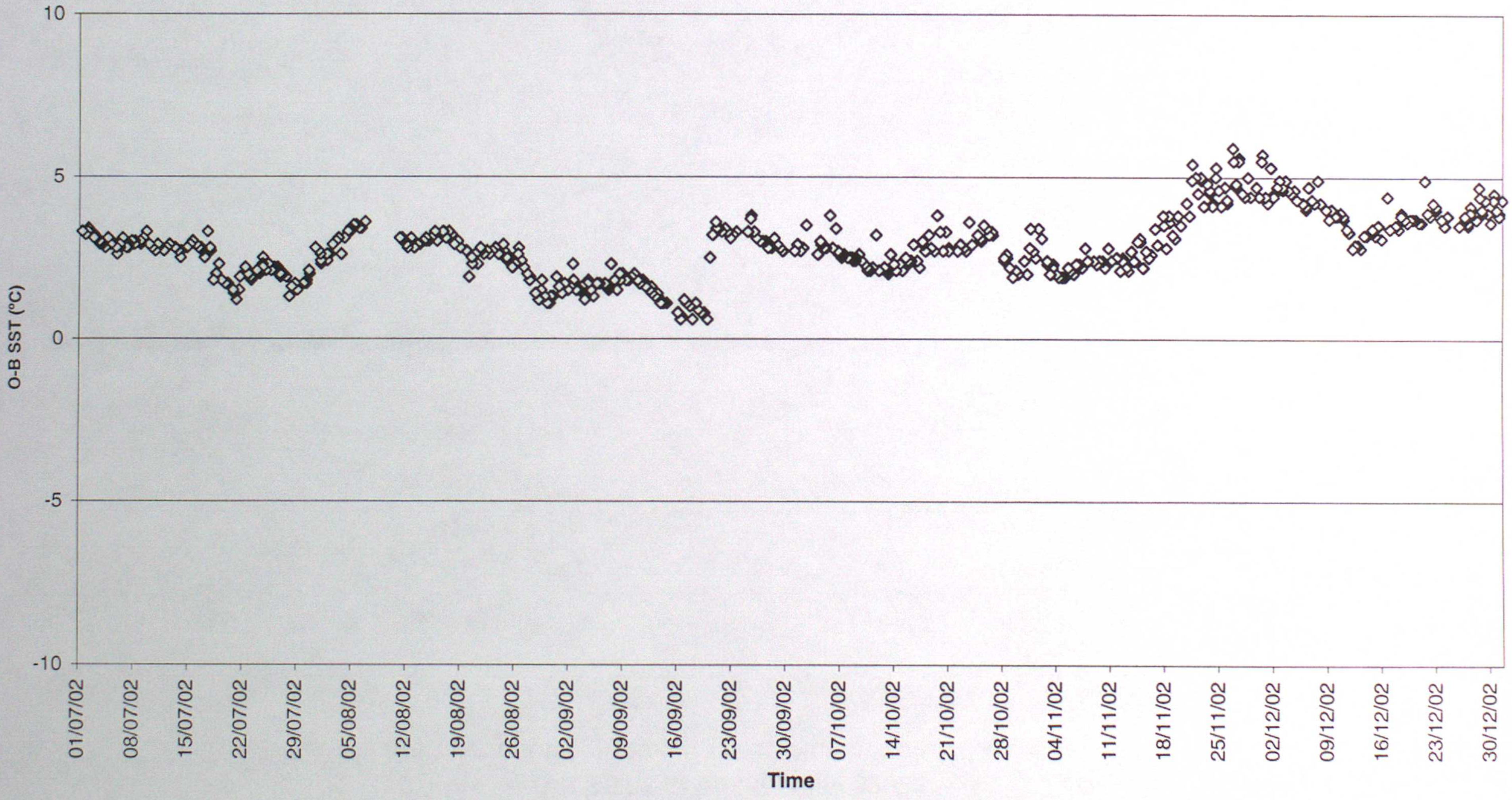
O-B SST (°C) for identifier 32907
Number of obs. plotted = 1174   Number of outliers = 0

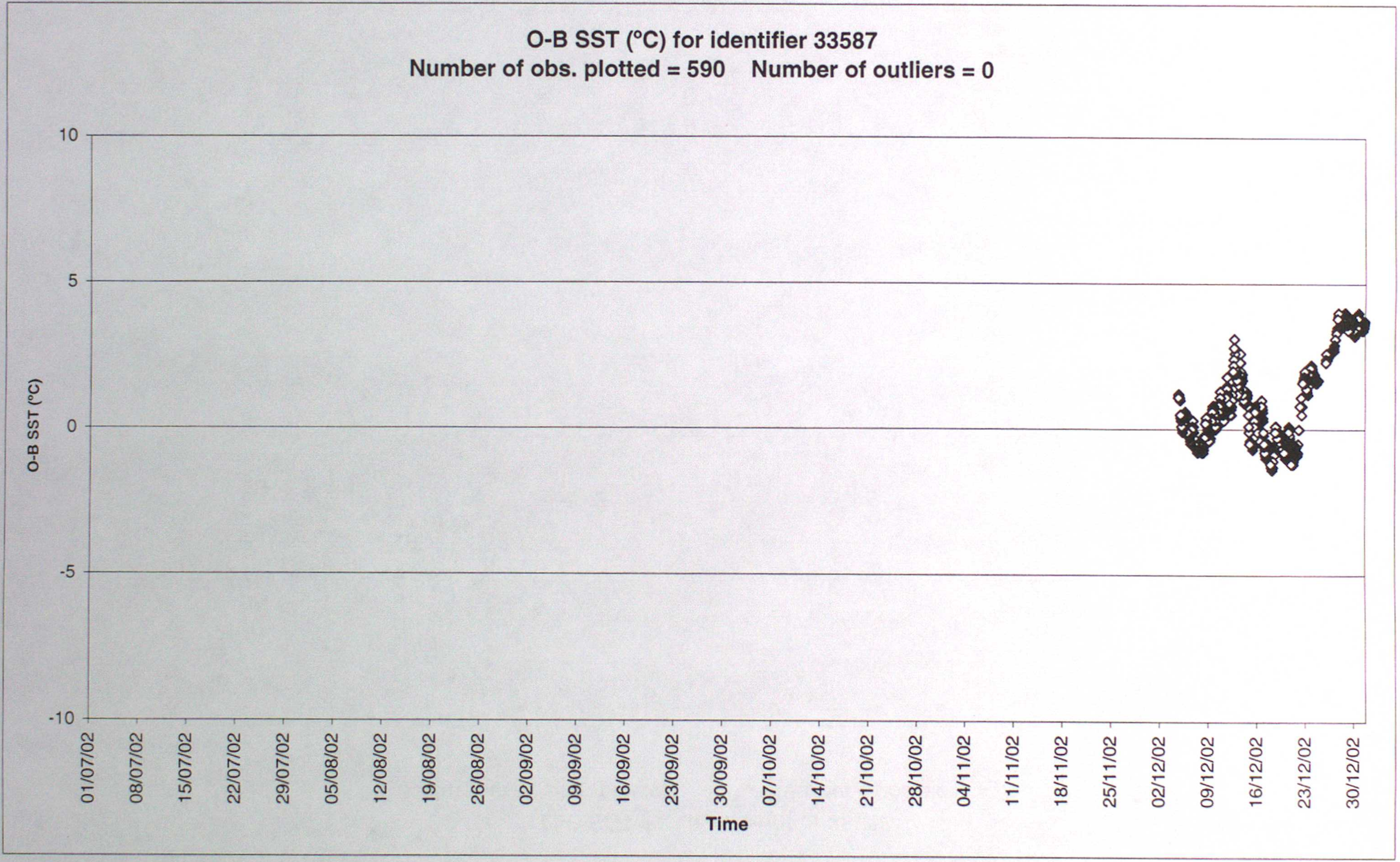


O-B SST (°C) for identifier 32922
Number of obs. plotted = 1168   Number of outliers = 0

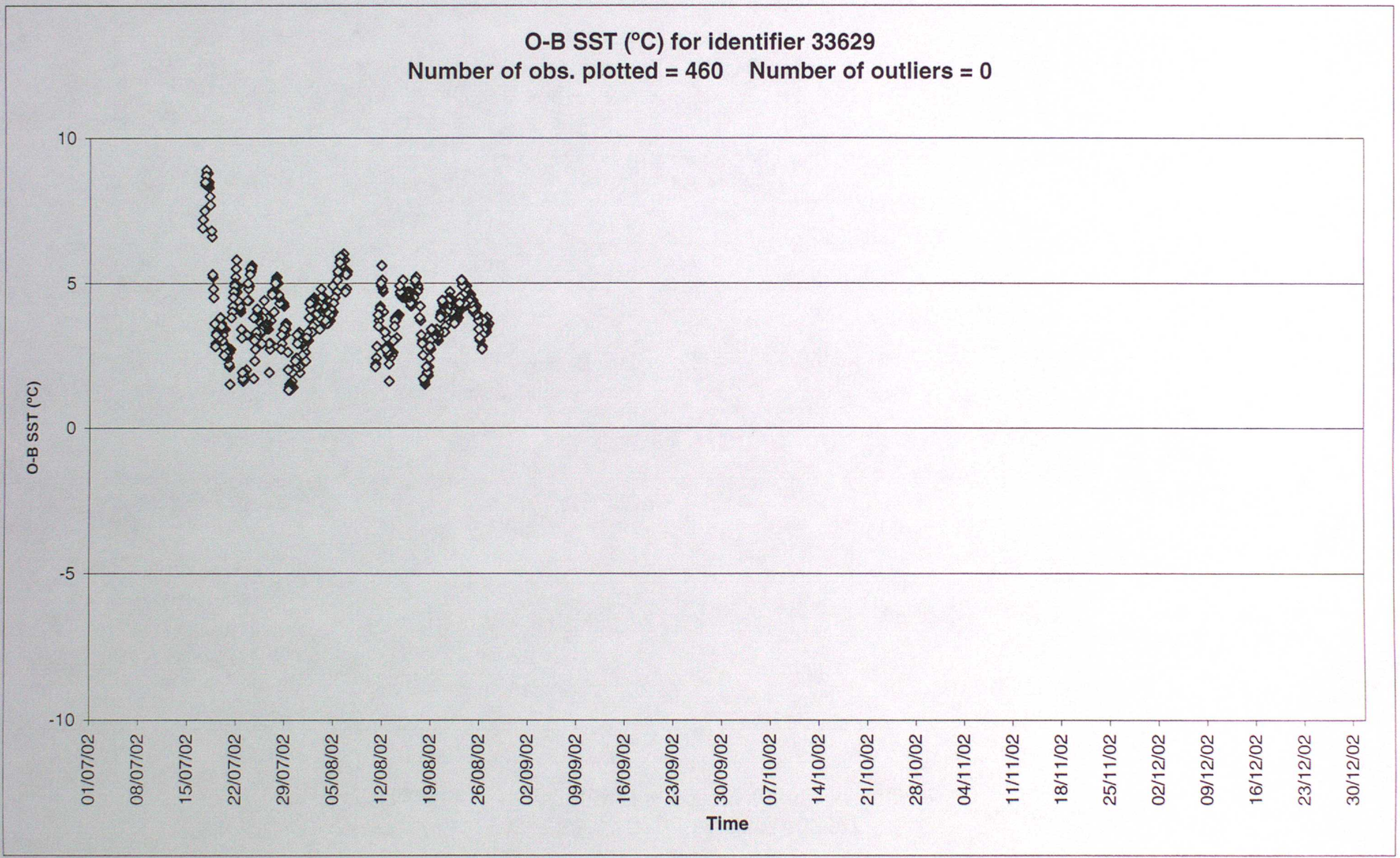
O-B SST (°C) for identifier 33502

Number of obs. plotted = 634   Number of outliers = 0

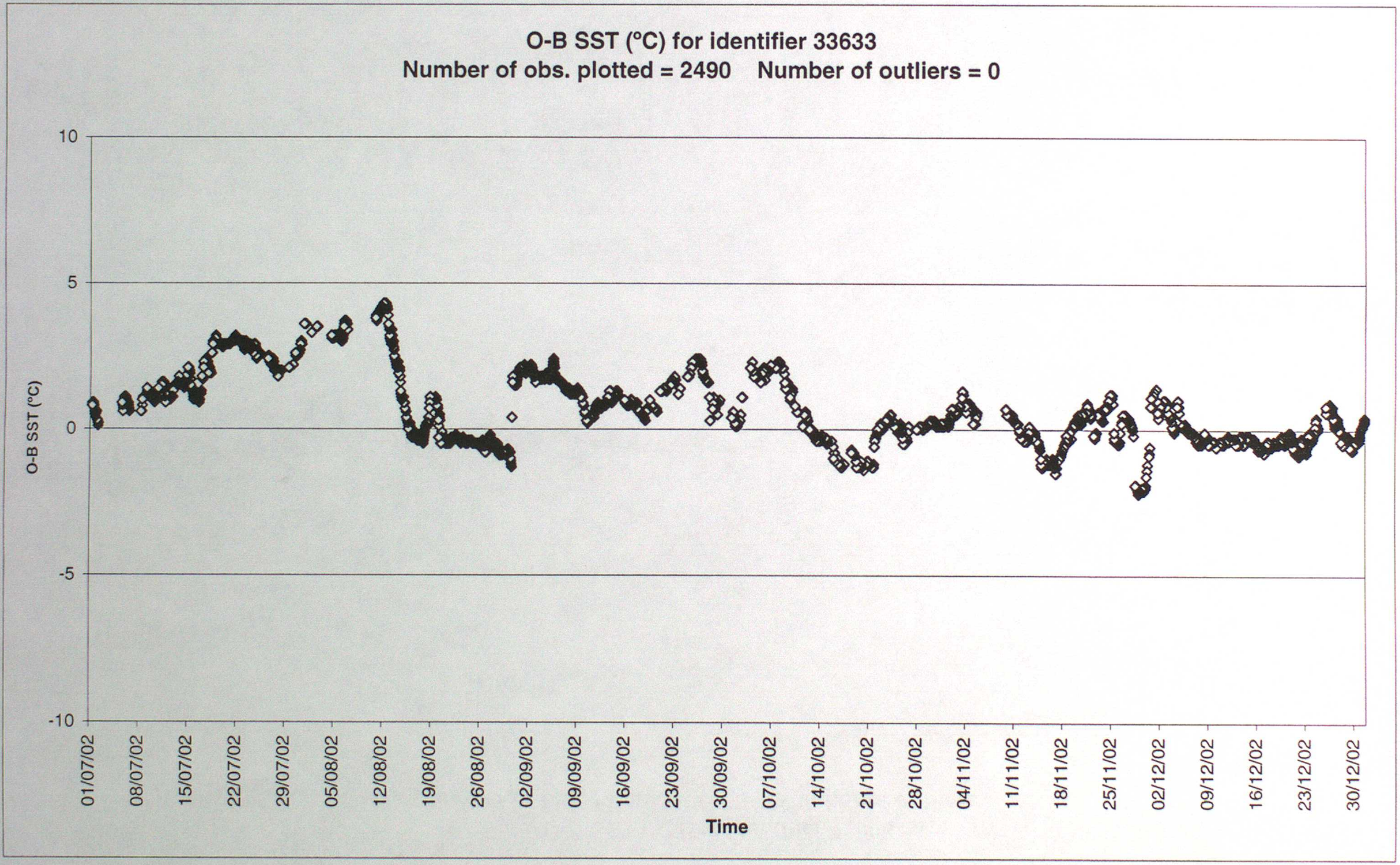


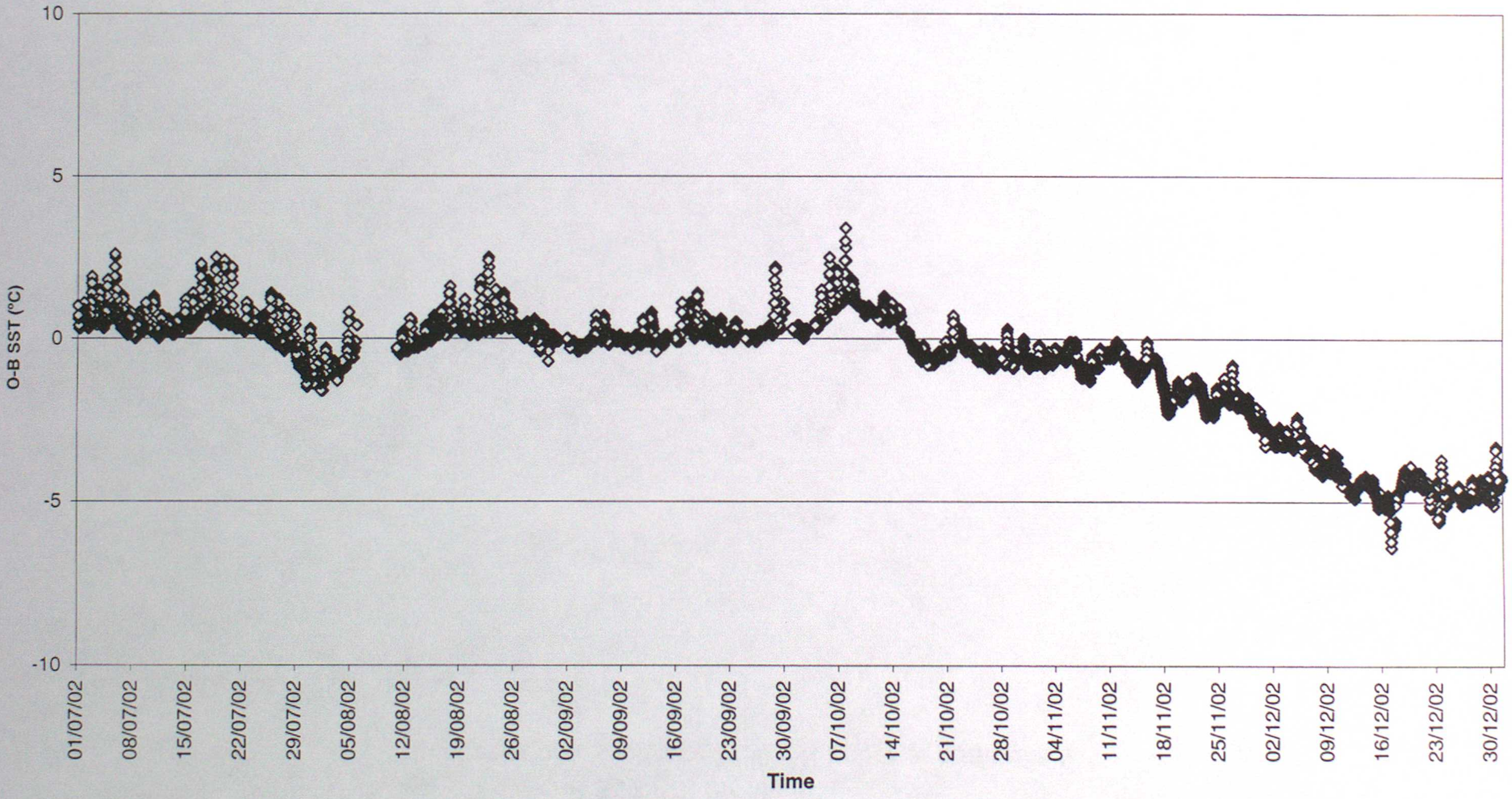


O-B SST (°C) for identifier 33587
Number of obs. plotted = 590   Number of outliers = 0



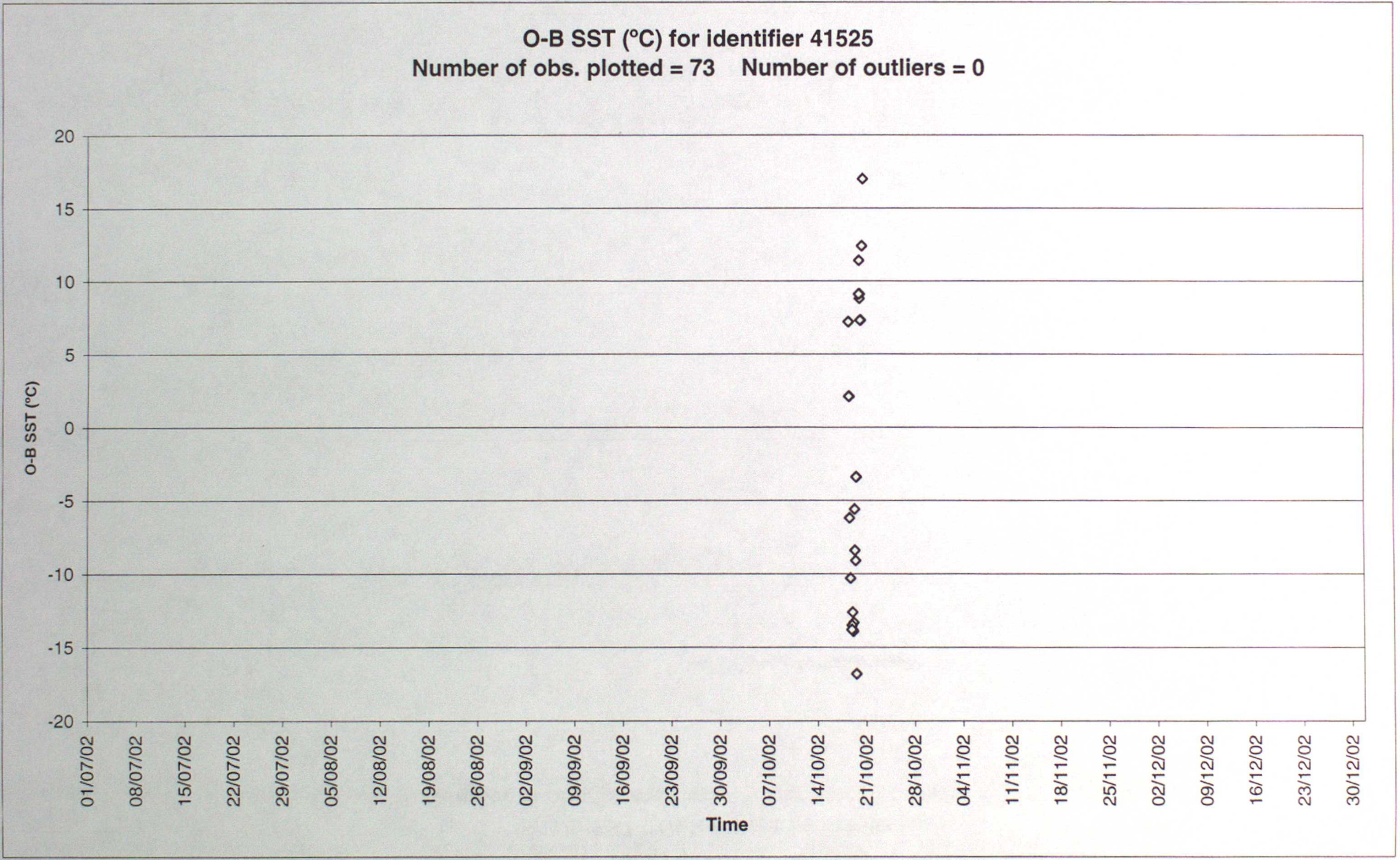
O-B SST (°C) for identifier 33629
Number of obs. plotted = 460   Number of outliers = 0


O-B SST (°C) for identifier 33633
Number of obs. plotted = 2490   Number of outliers = 0

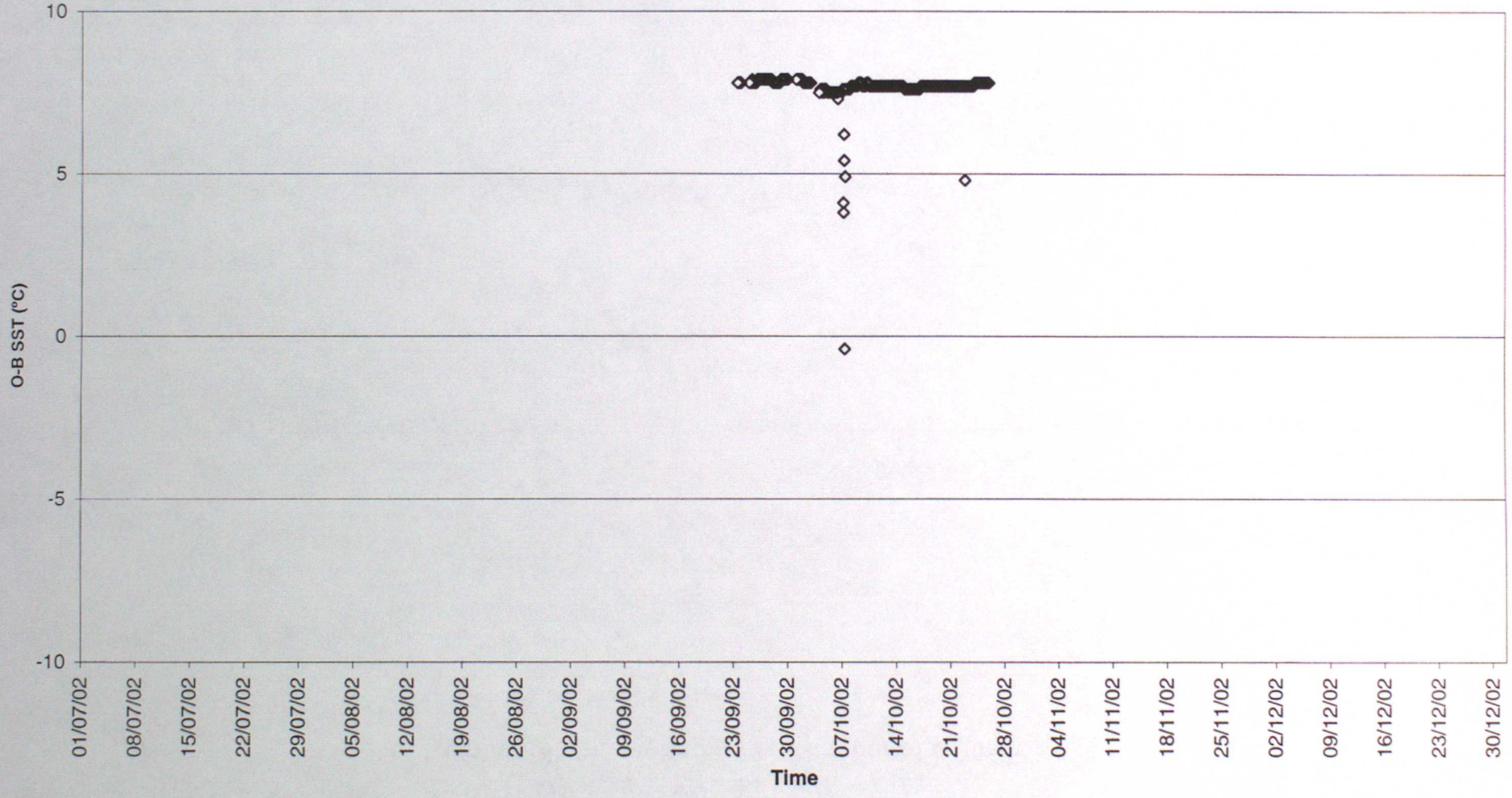


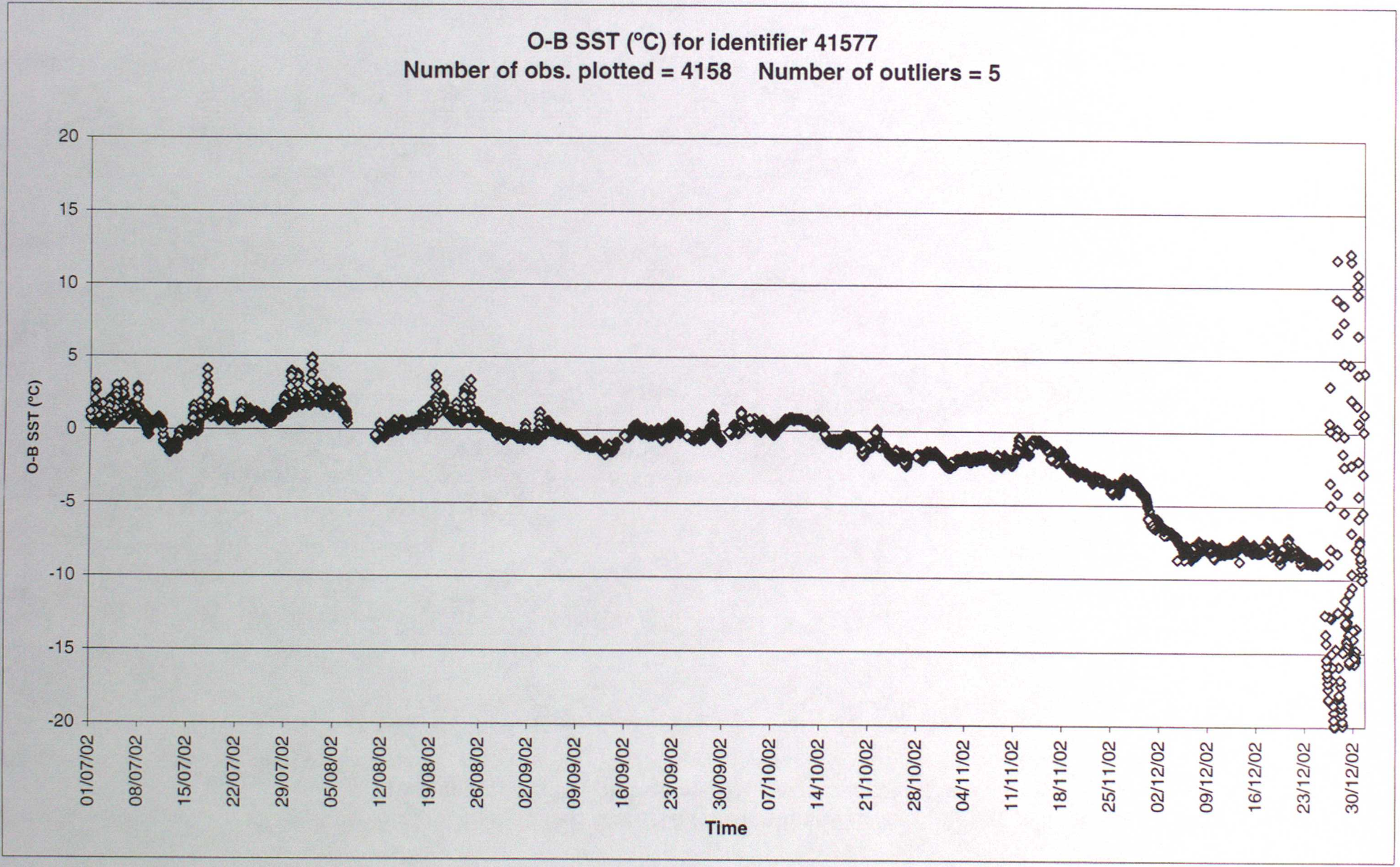
O-B SST (°C) for identifier 41008

Number of obs. plotted = 4089 Number of outliers = 0



O-B SST (°C) for identifier 41525
Number of obs. plotted = 73 Number of outliers = 0

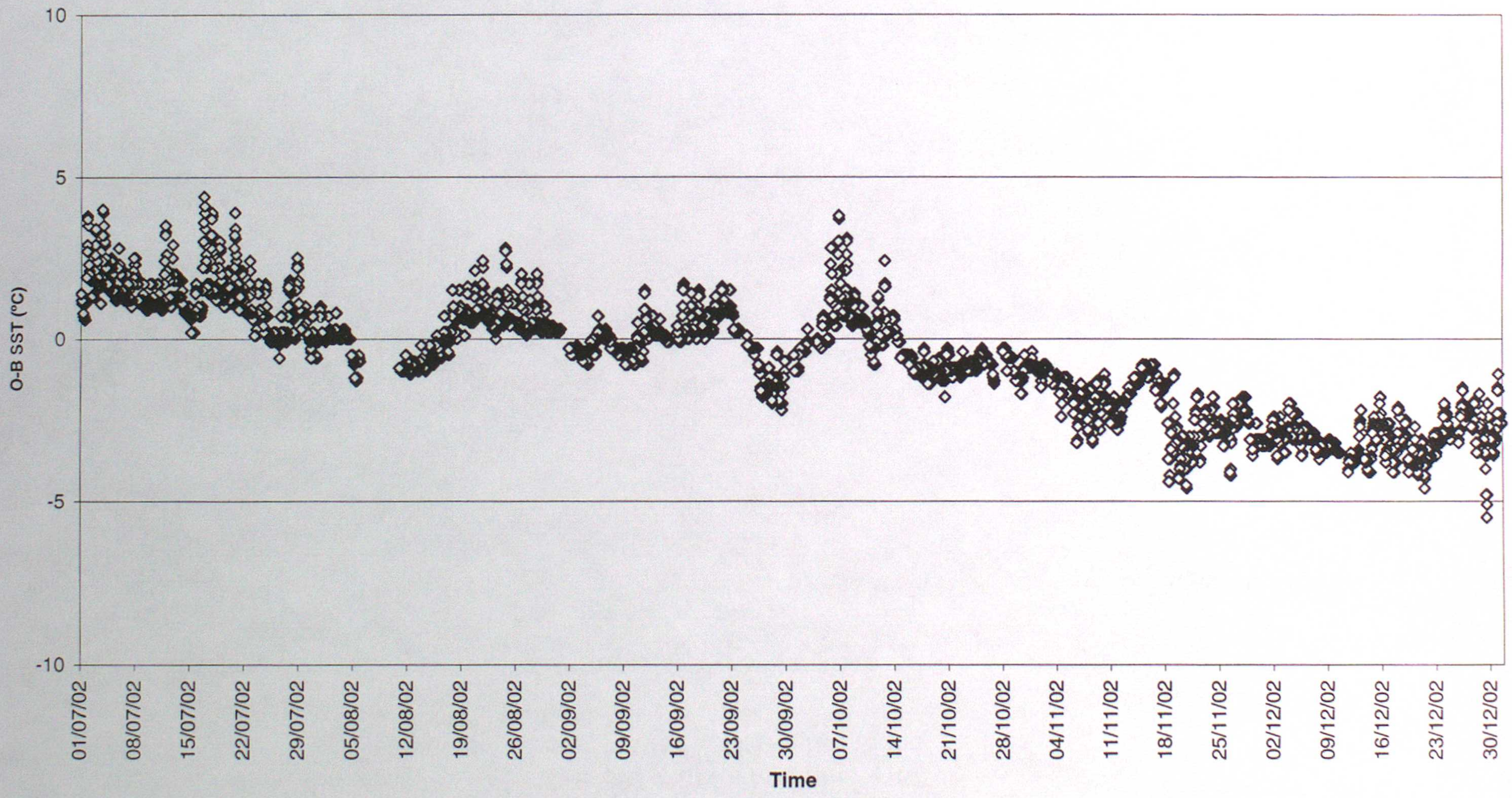

O-B SST (°C) for identifier 41563
Number of obs. plotted = 631   Number of outliers = 1



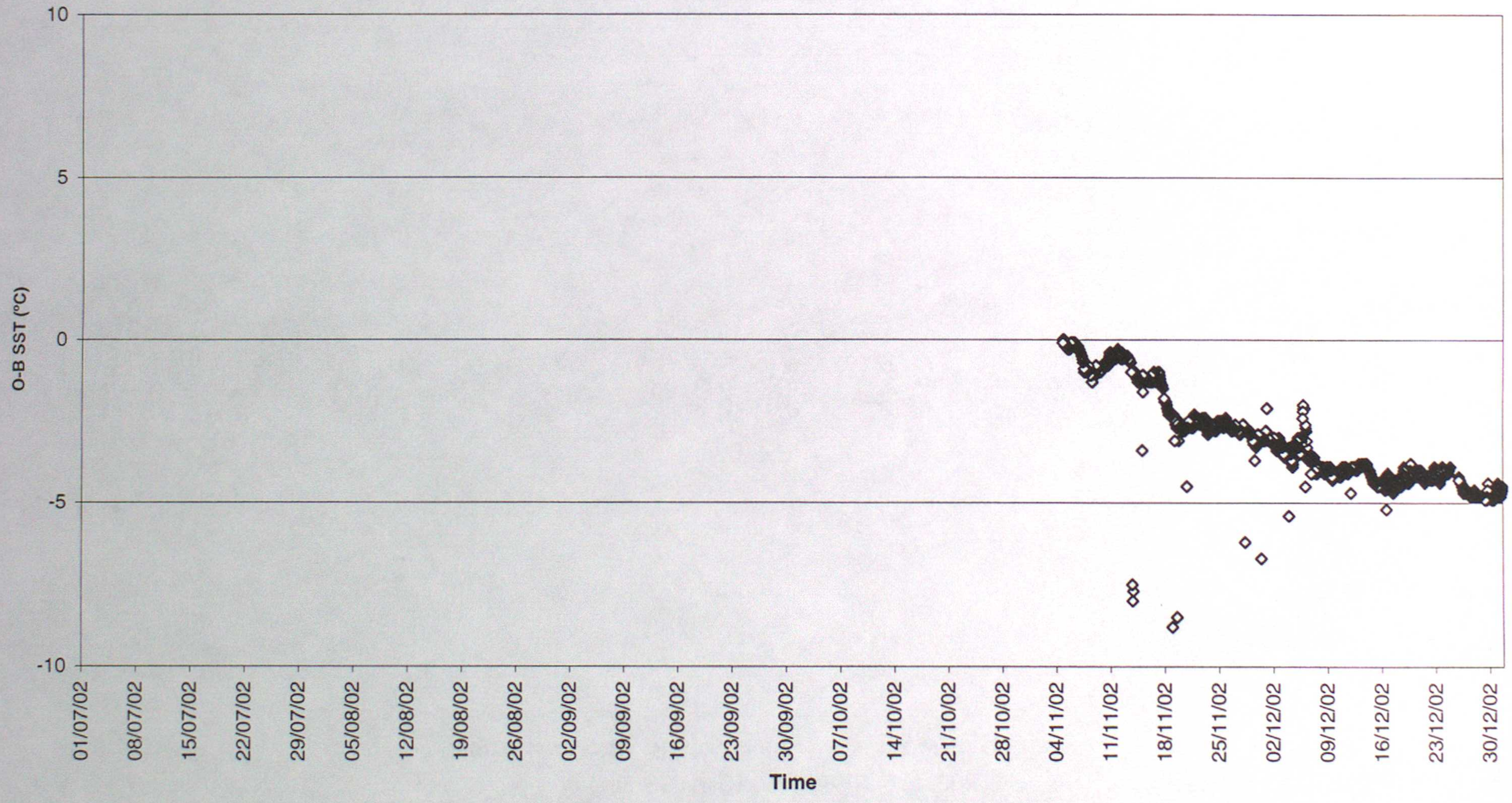
O-B SST (°C) for identifier 41577
Number of obs. plotted = 4158   Number of outliers = 5

O-B SST (°C) for identifier 42007

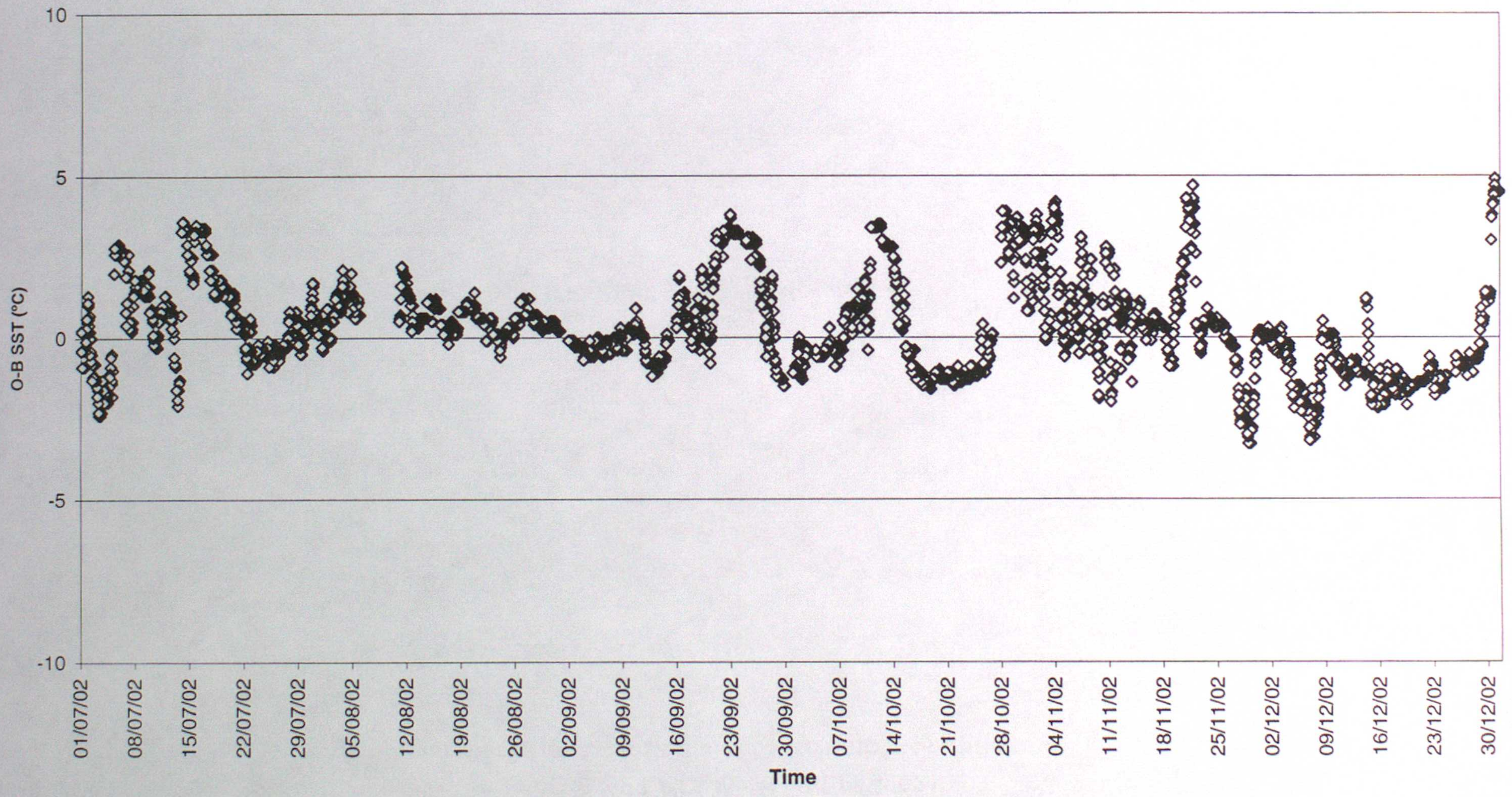
Number of obs. plotted = 4079   Number of outliers = 0



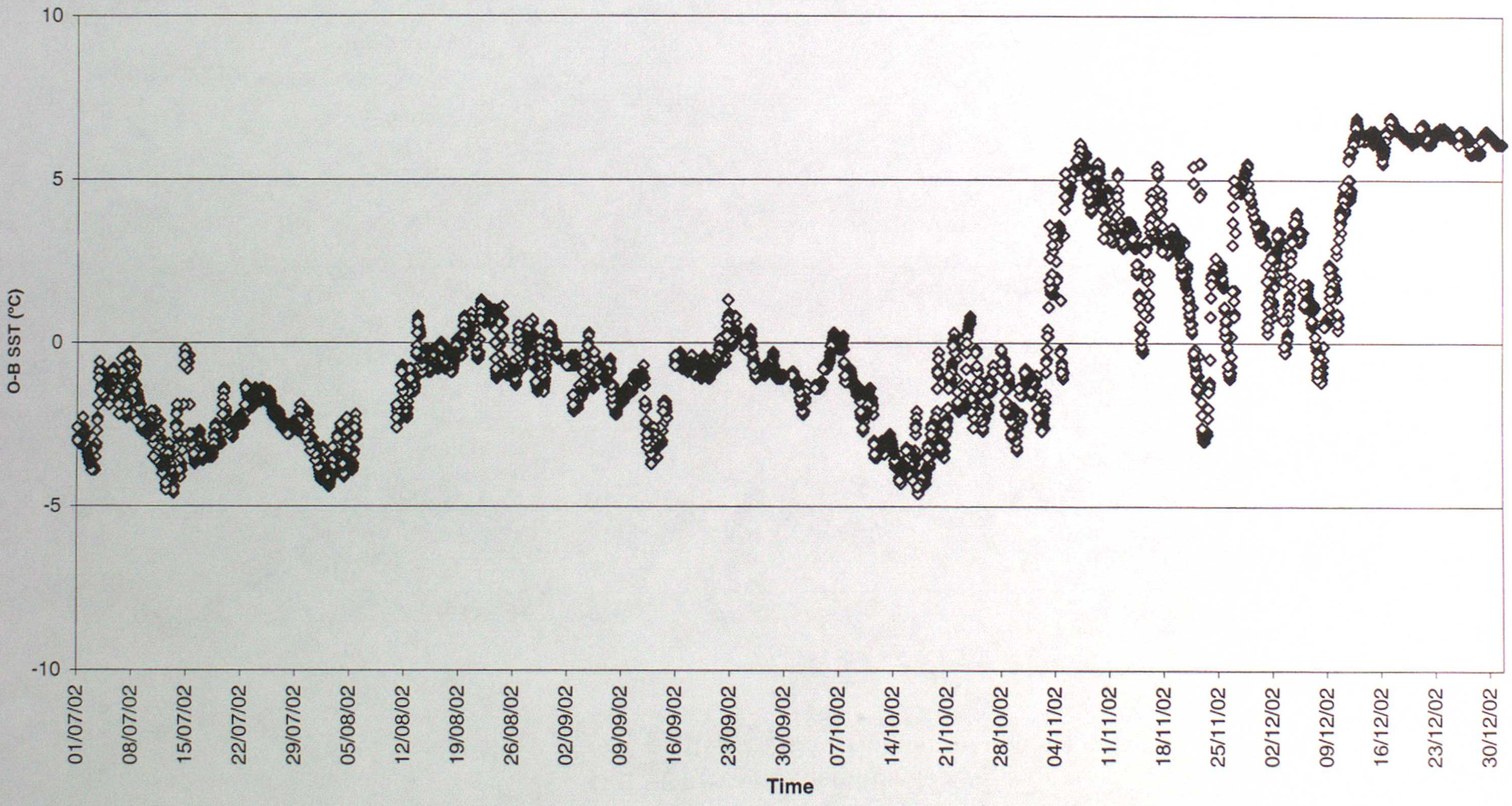
O-B SST (ºC) for identifier 42021
Number of obs. plotted = 1173   Number of outliers = 0

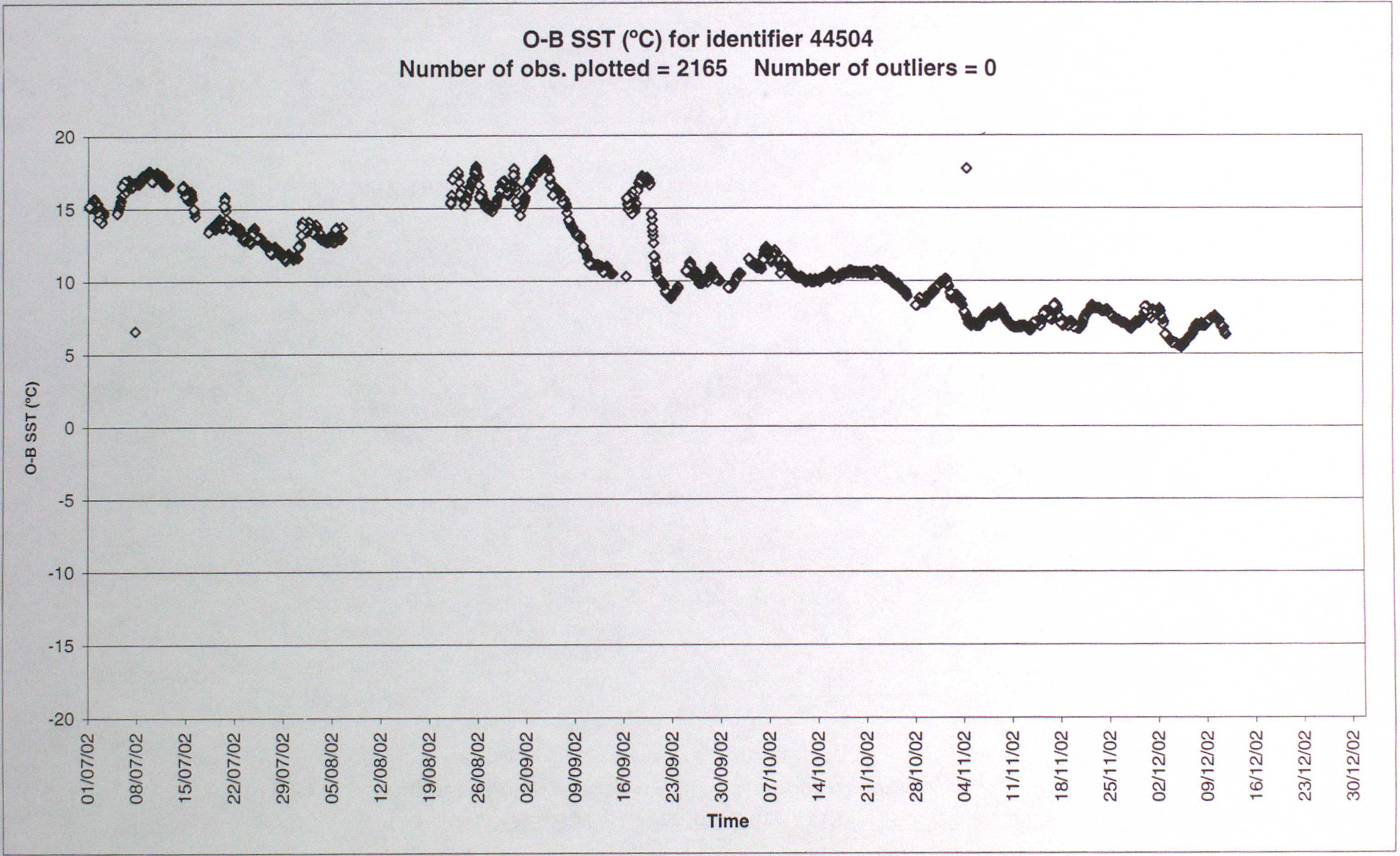


O-B SST (°C) for identifier 44004
Number of obs. plotted = 4096   Number of outliers = 0

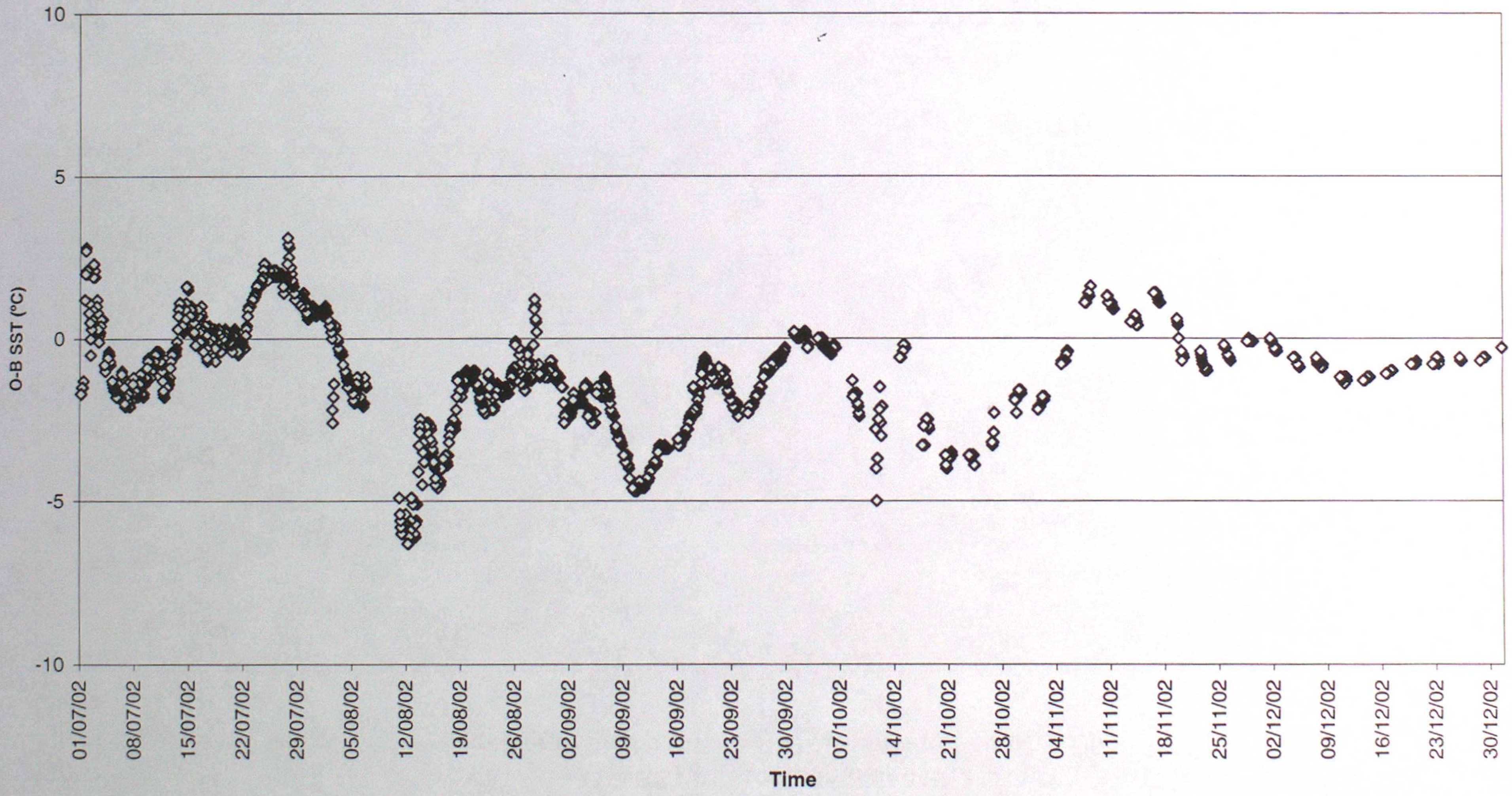


O-B SST (°C) for identifier 44137
Number of obs. plotted = 4097   Number of outliers = 0

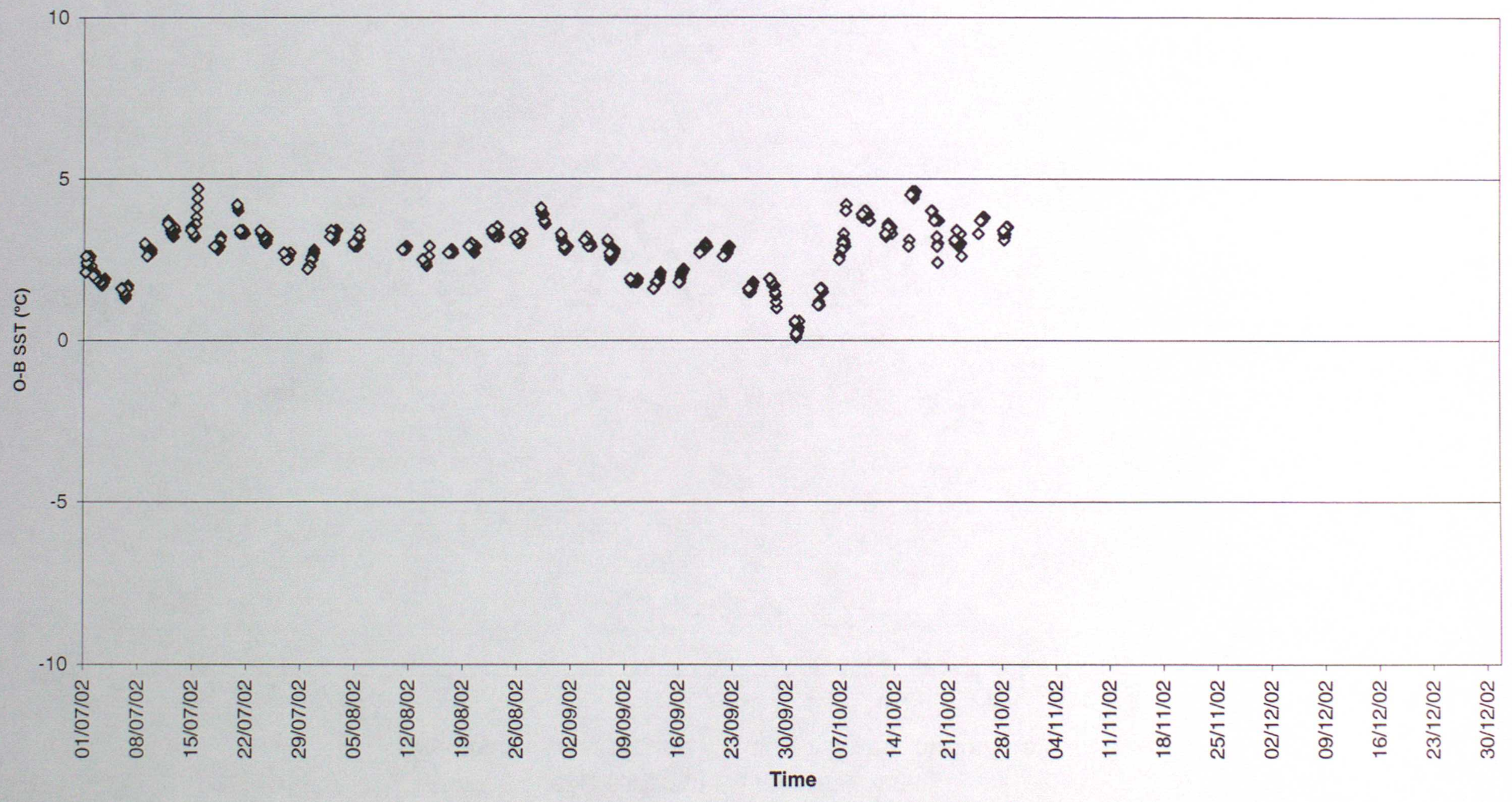



O-B SST (°C) for identifier 44504
Number of obs. plotted = 2165   Number of outliers = 0
O-B SST (°C)
20
15
10
5
0
-5
-10
-15
-20
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

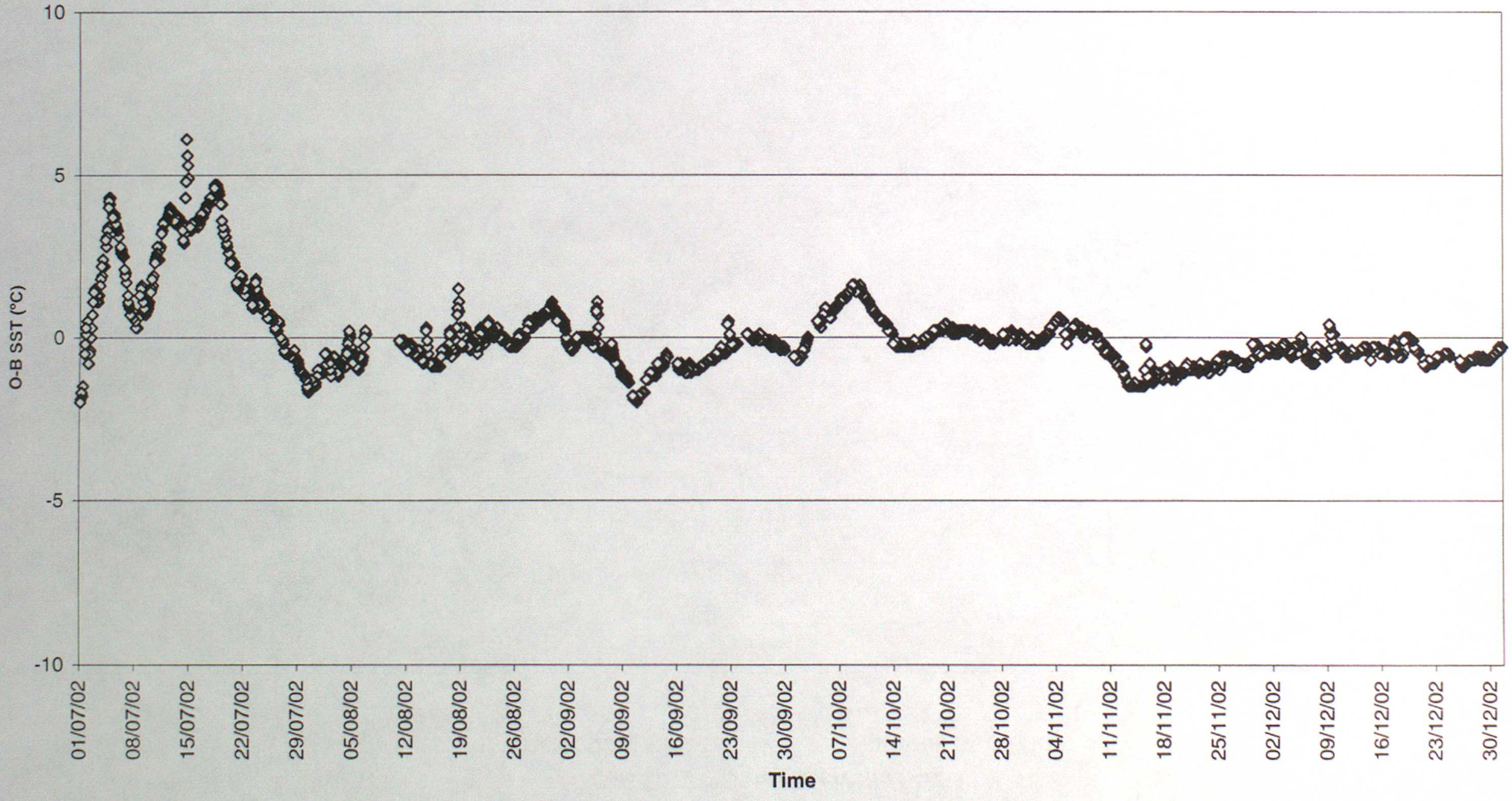
O-B SST (°C) for identifier 44508
Number of obs. plotted = 1380   Number of outliers = 0



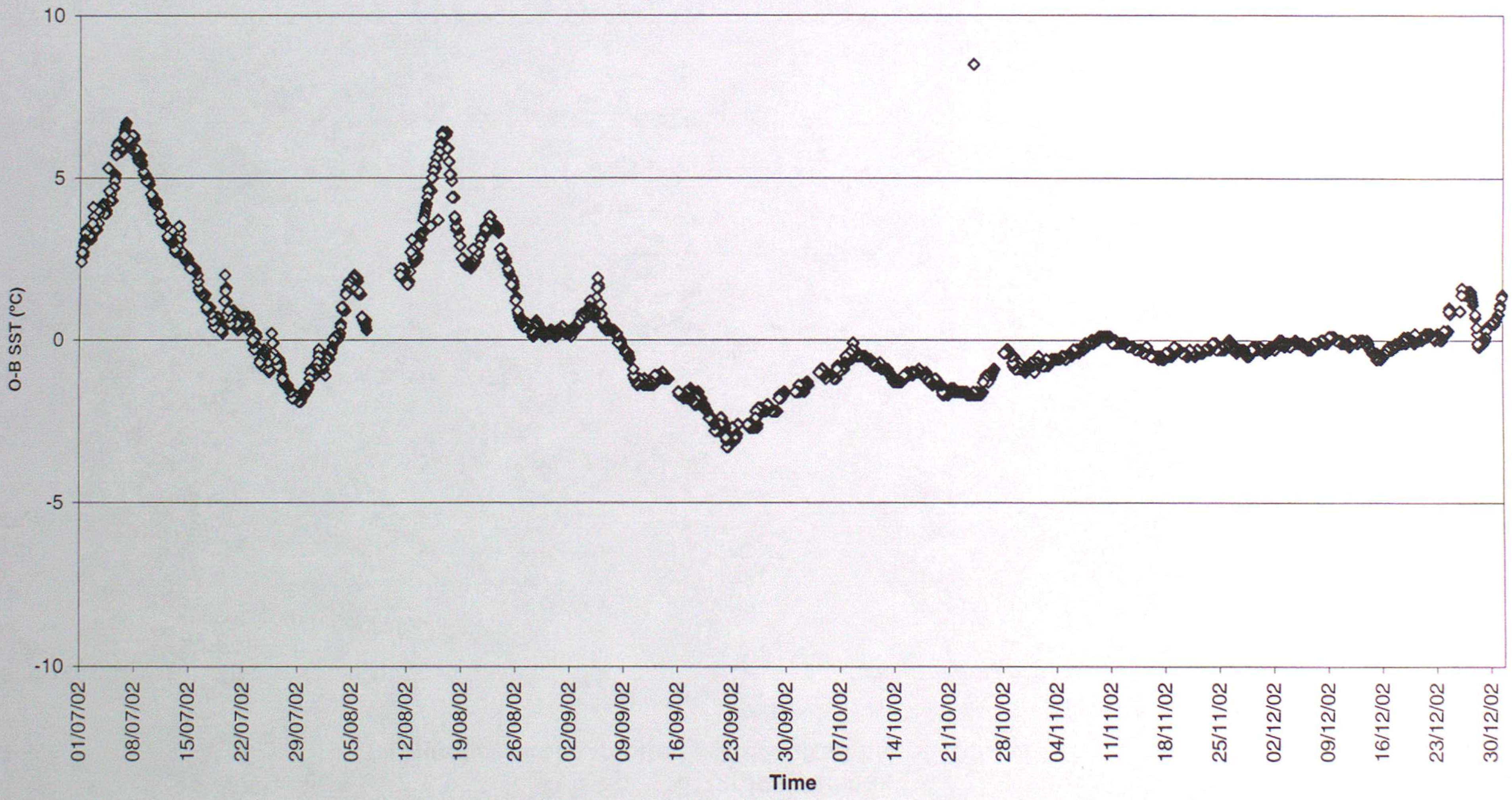
O-B SST (°C) for identifier 44512
Number of obs. plotted = 482   Number of outliers = 0



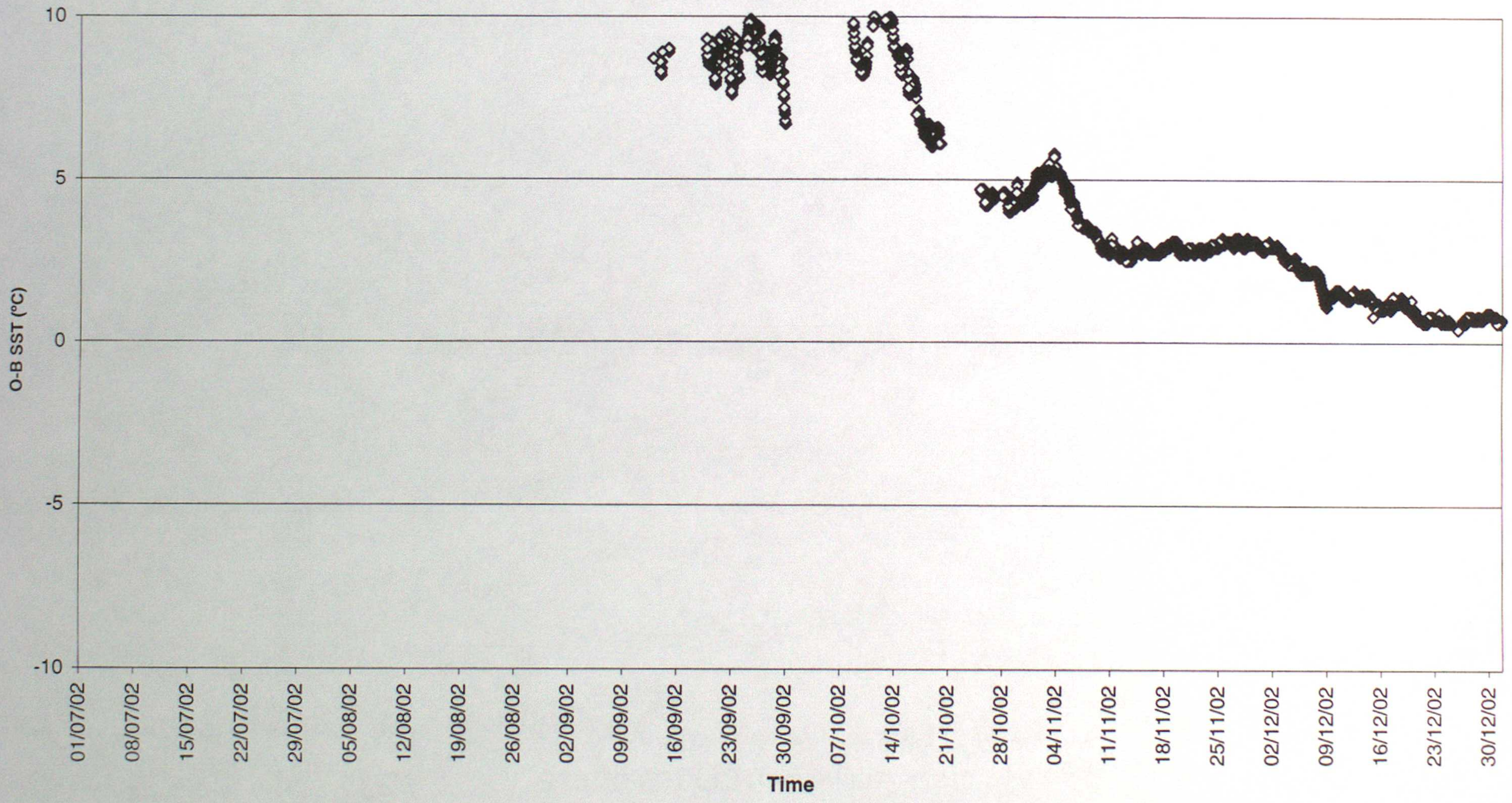
O-B SST (°C) for identifier 44516
Number of obs. plotted = 2164   Number of outliers = 0

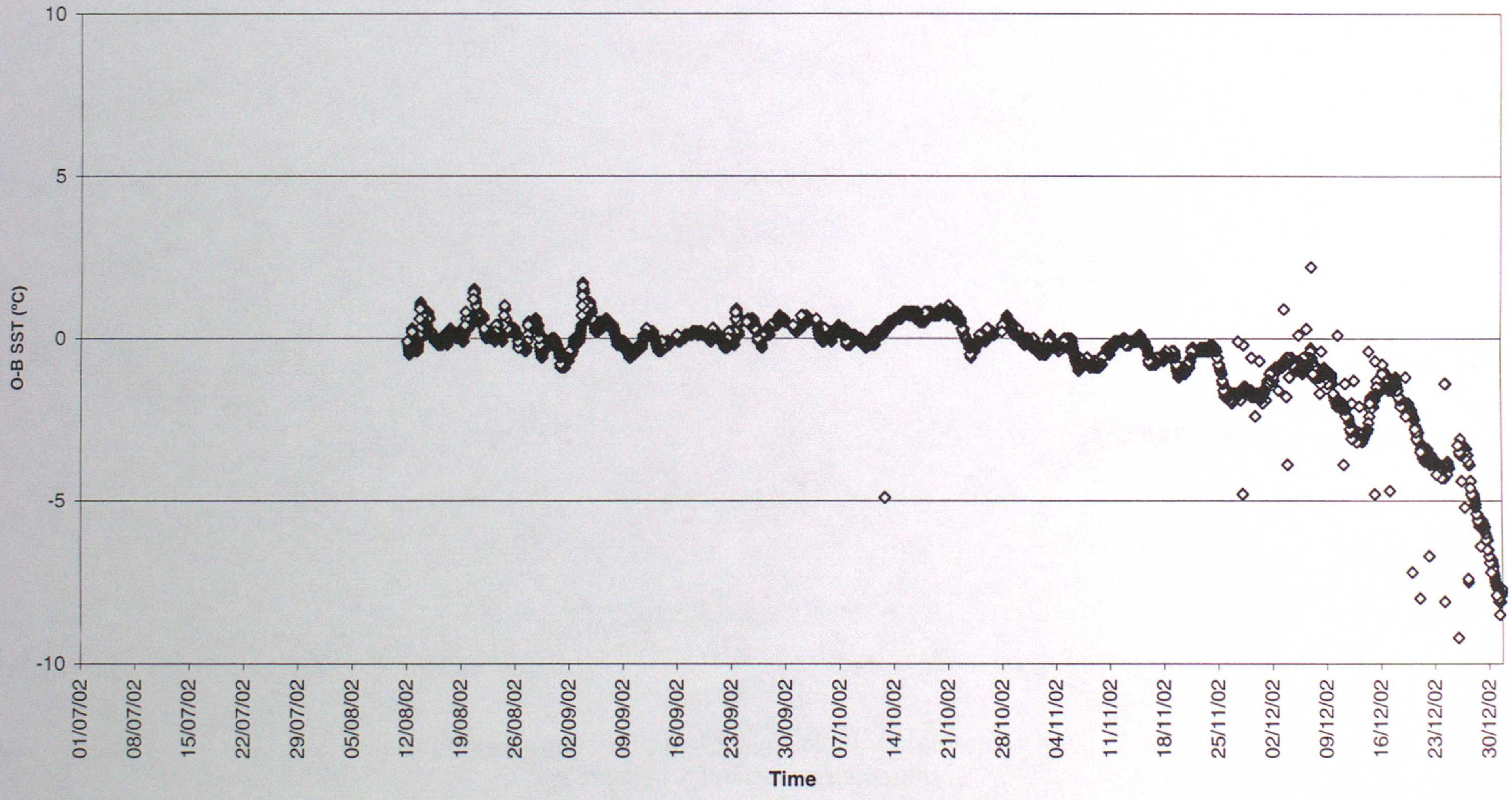


O-B SST (°C) for identifier 44517
Number of obs. plotted = 2477   Number of outliers = 1



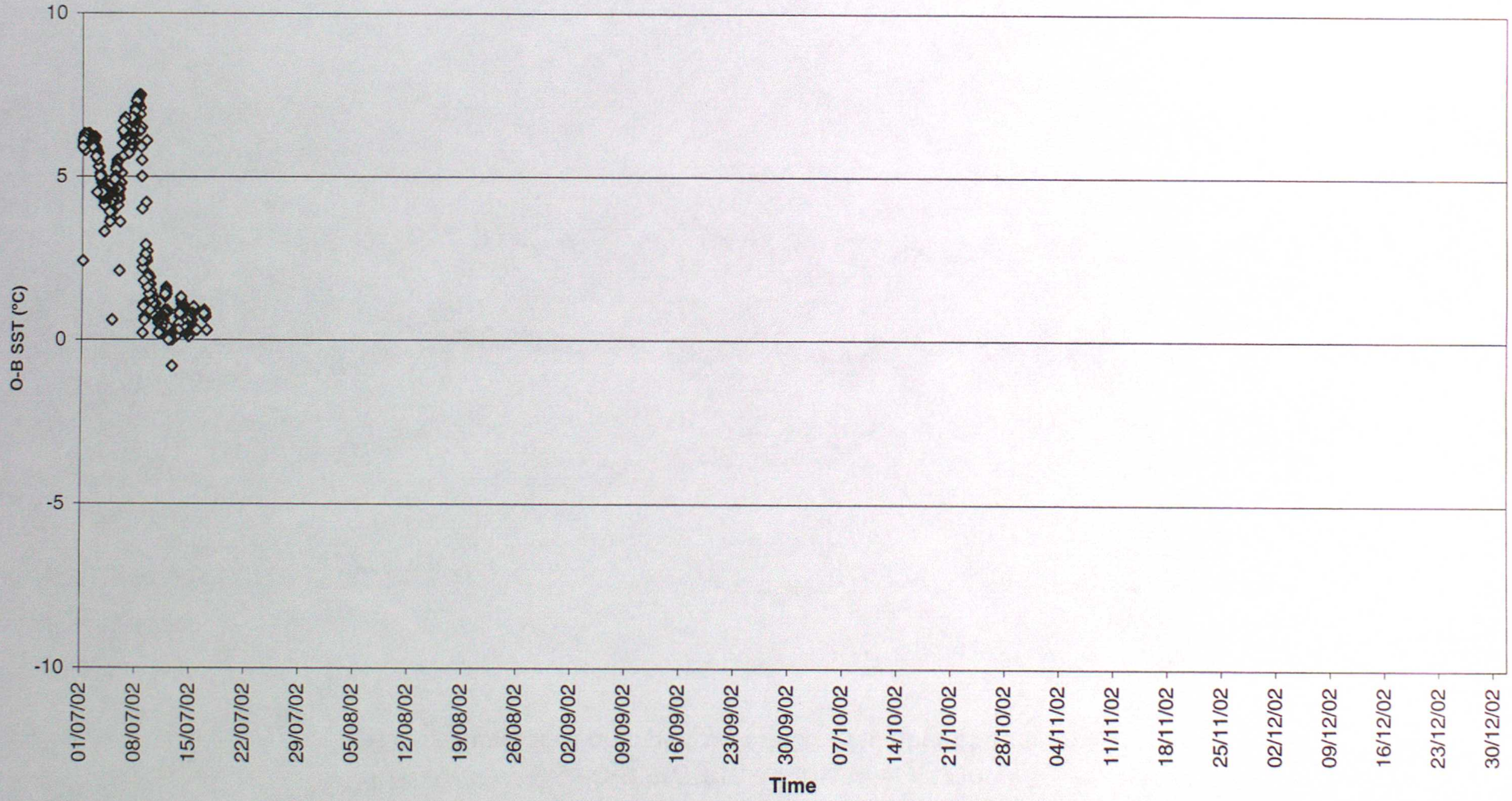
O-B SST (°C) for identifier 44607
Number of obs. plotted = 2246   Number of outliers = 57

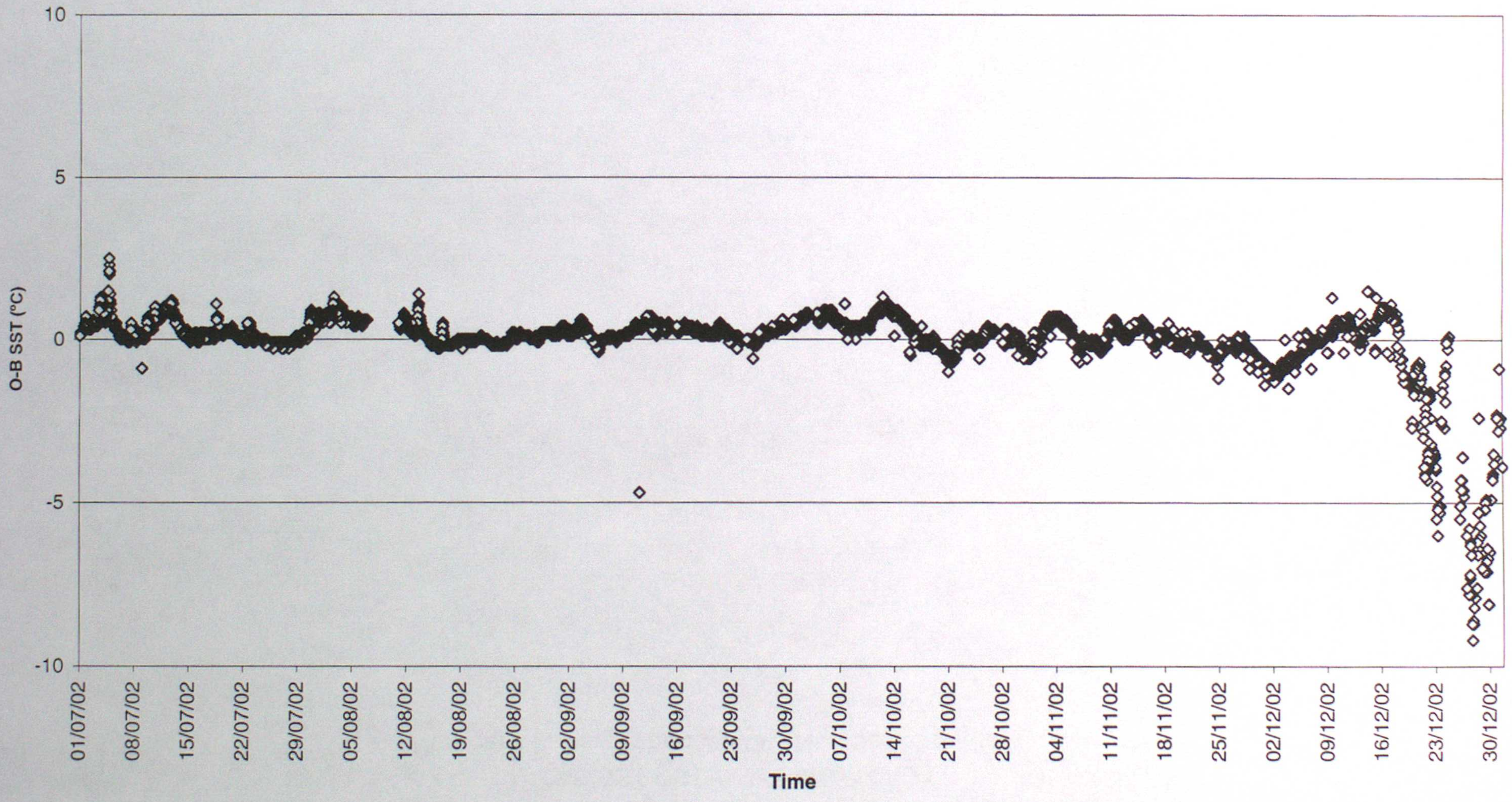




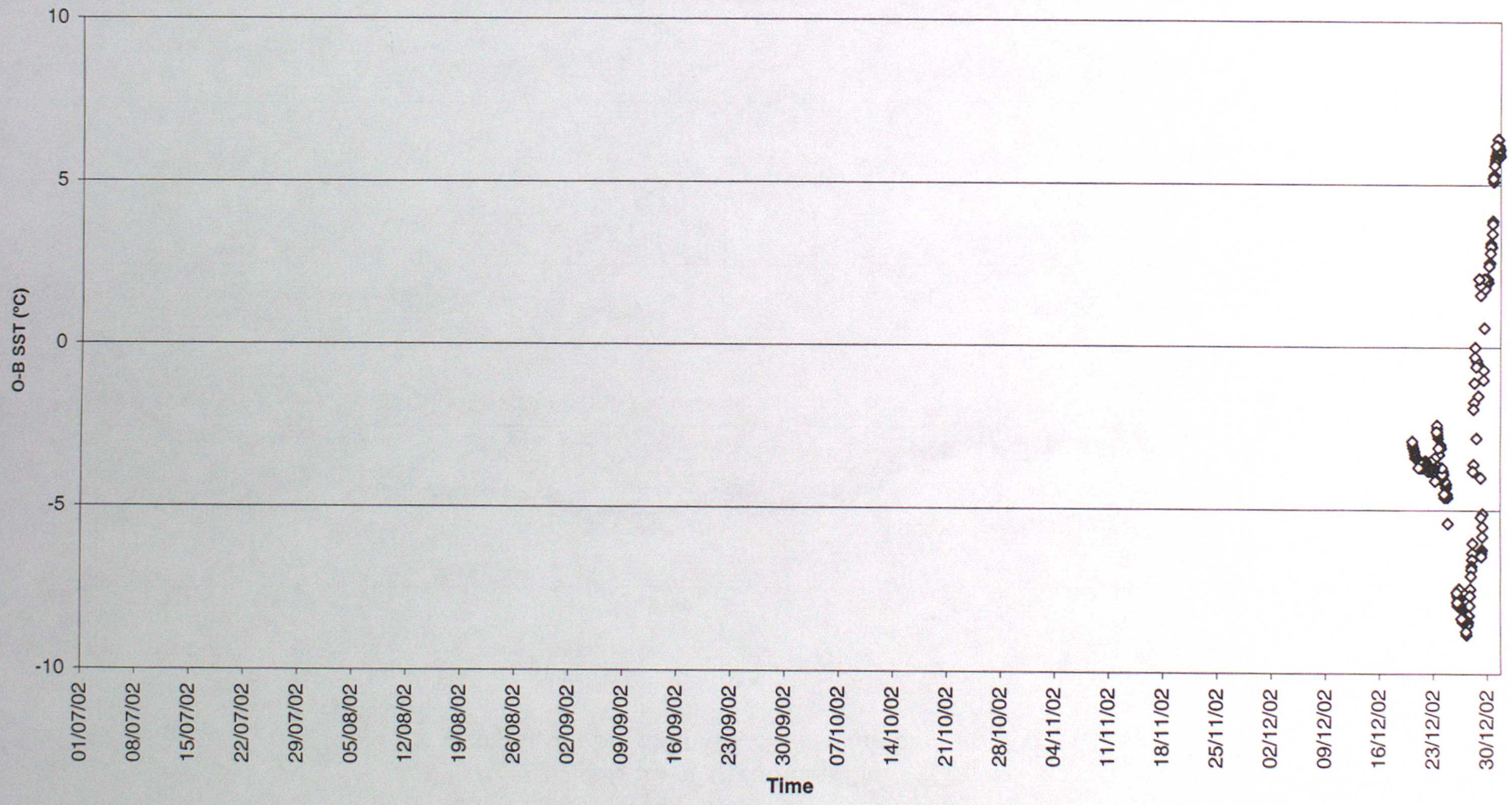
O-B SST (°C) for identifier 44610
Number of obs. plotted = 3726   Number of outliers = 2

O-B SST (°C) for identifier 44621
Number of obs. plotted = 333   Number of outliers = 0





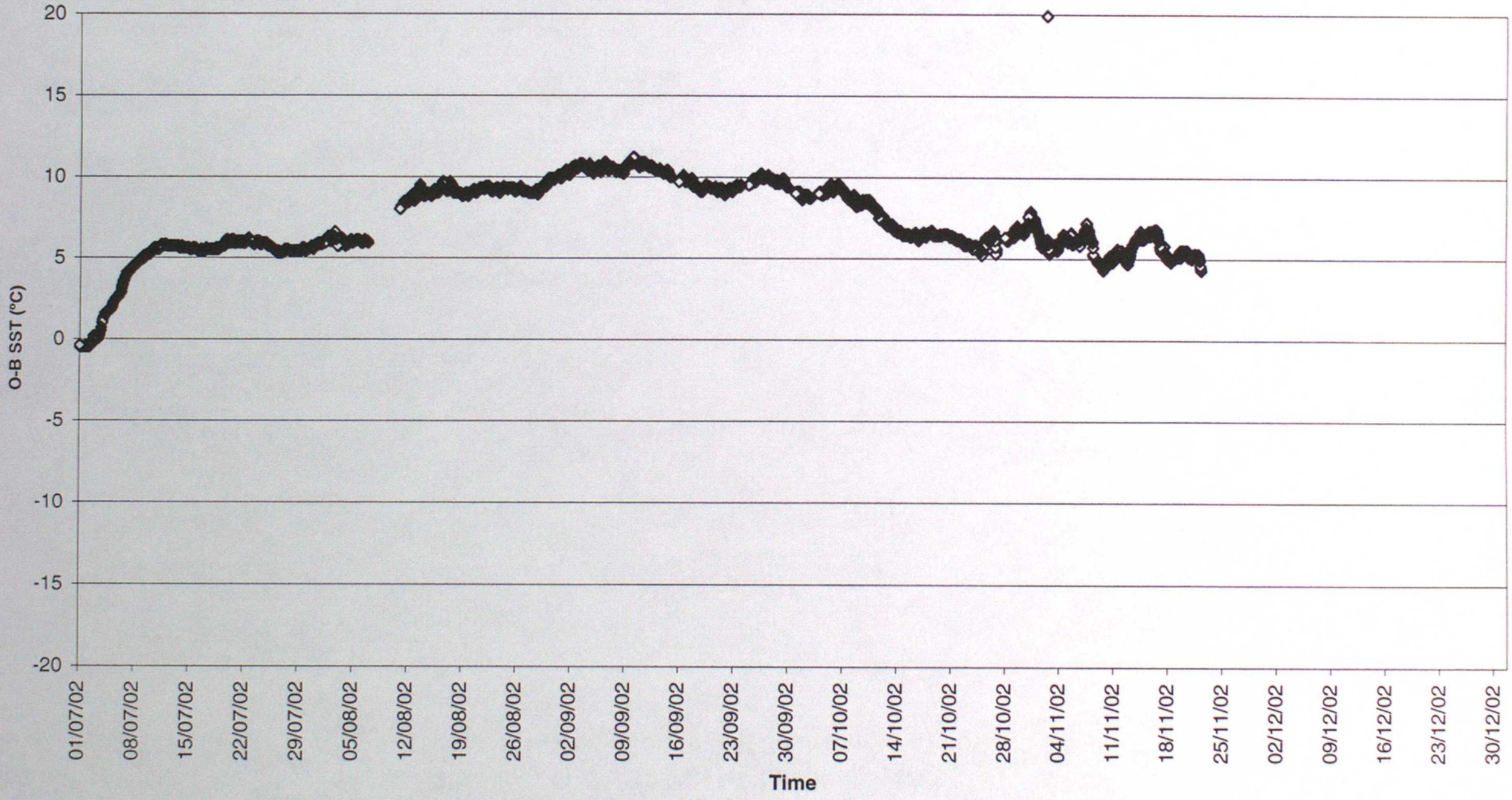
O-B SST (°C) for identifier 44730
Number of obs. plotted = 4465   Number of outliers = 1



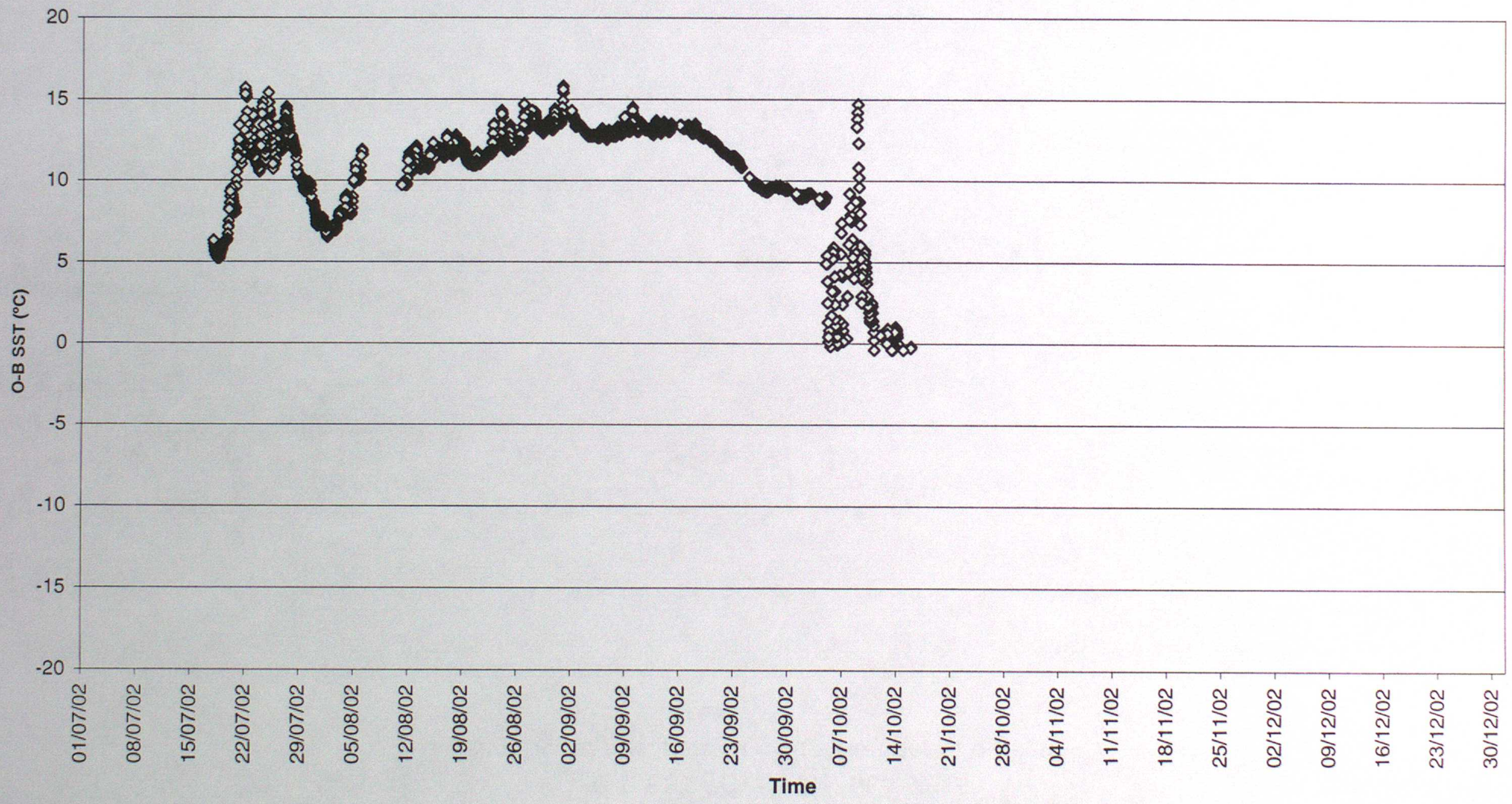
O-B SST (°C) for identifier 44768

Number of obs. plotted = 223   Number of outliers = 0

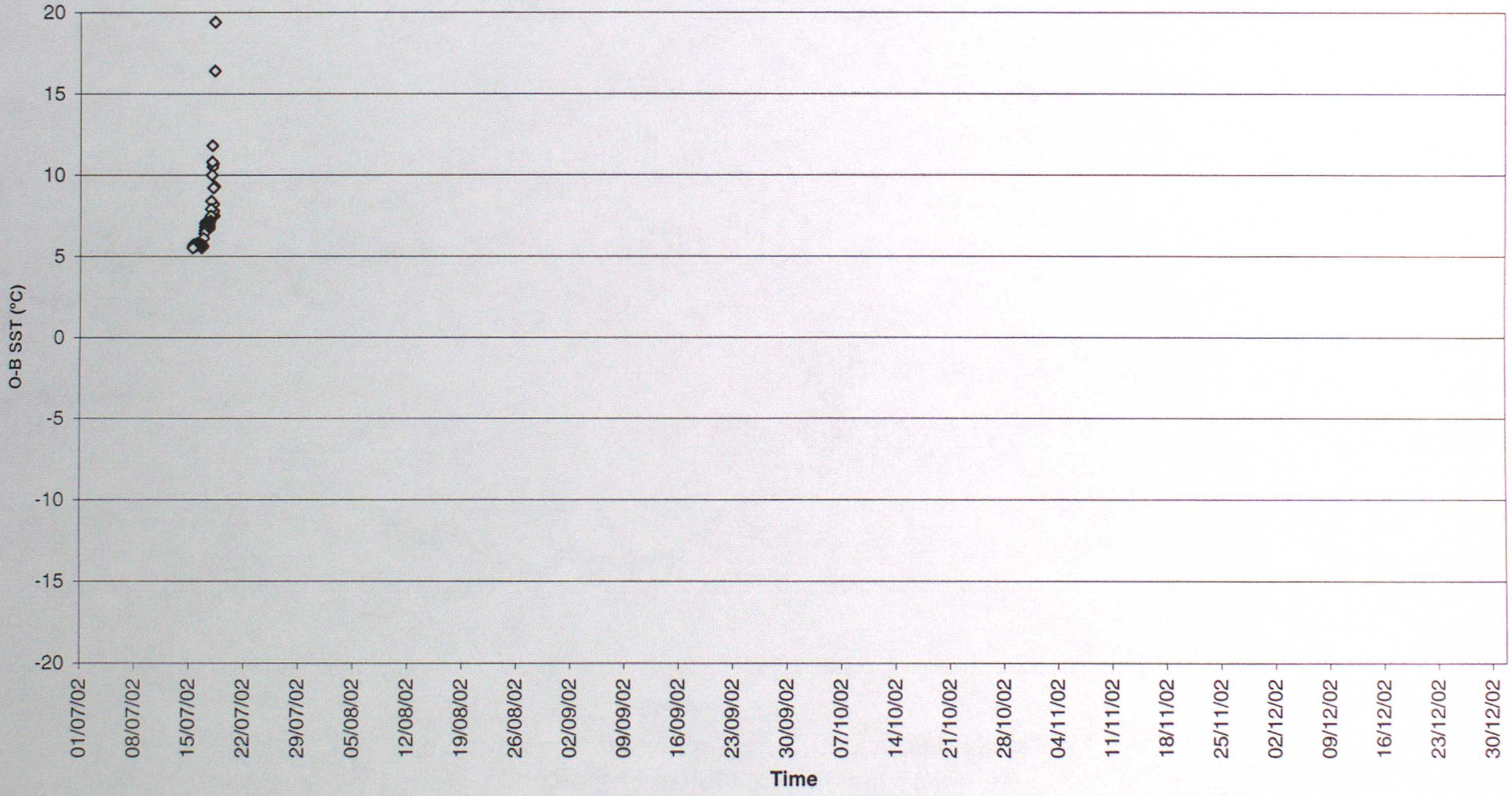
O-B SST (°C) for identifier 44772
Number of obs. plotted = 2939   Number of outliers = 0



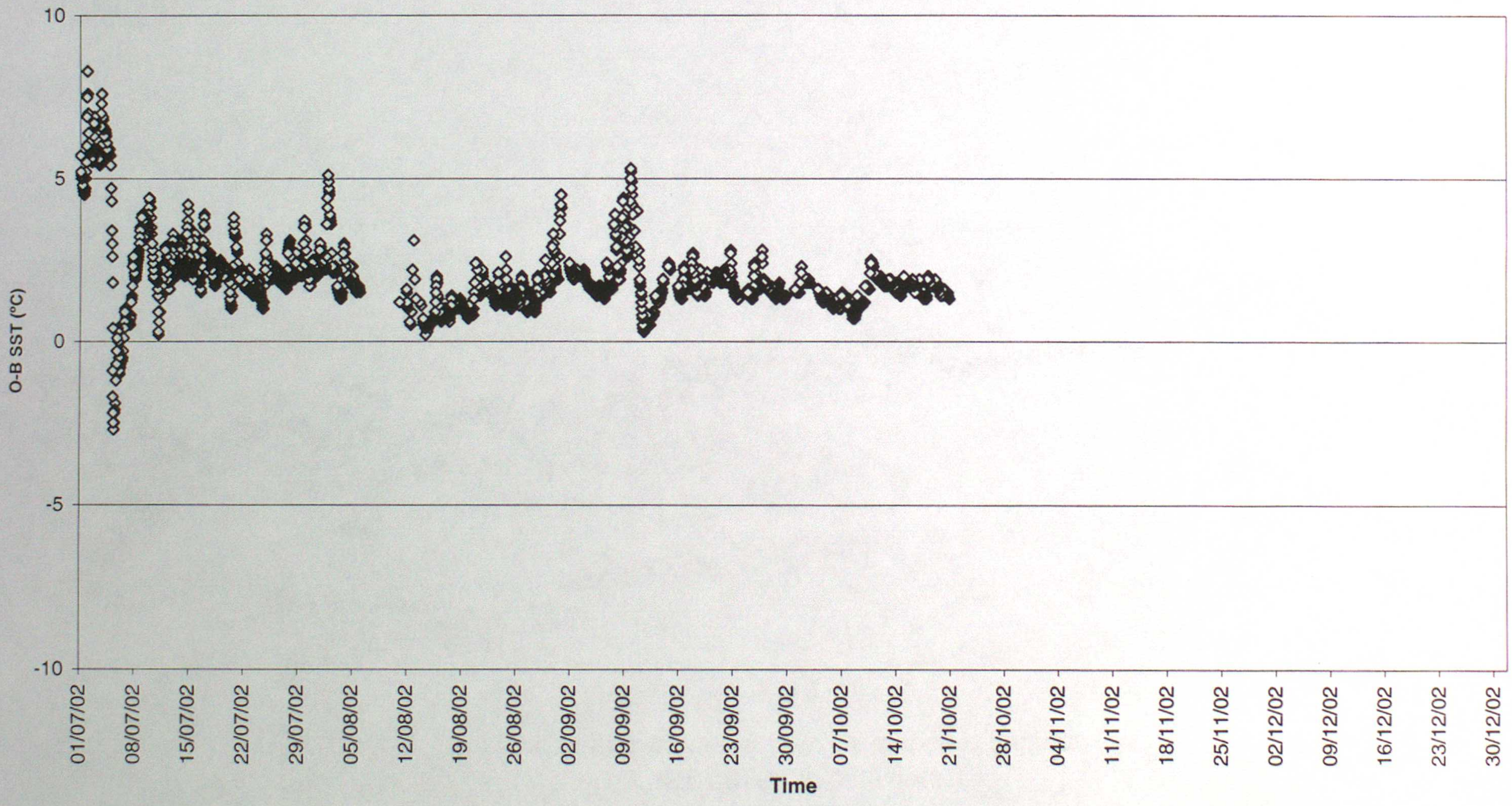
O-B SST (°C) for identifier 45141
Number of obs. plotted = 1762   Number of outliers = 0

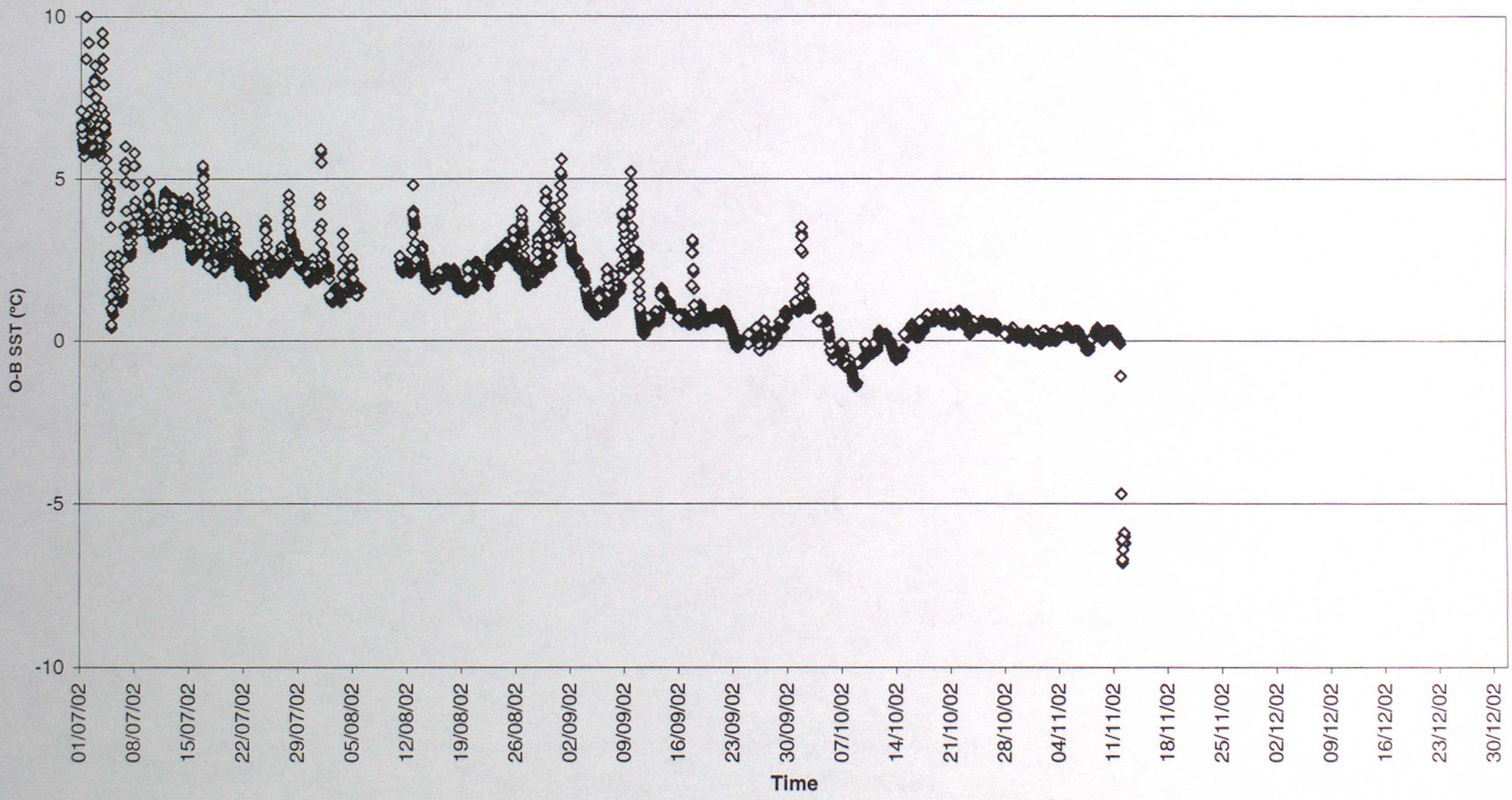


O-B SST (°C) for identifier 45150
Number of obs. plotted = 69   Number of outliers = 7



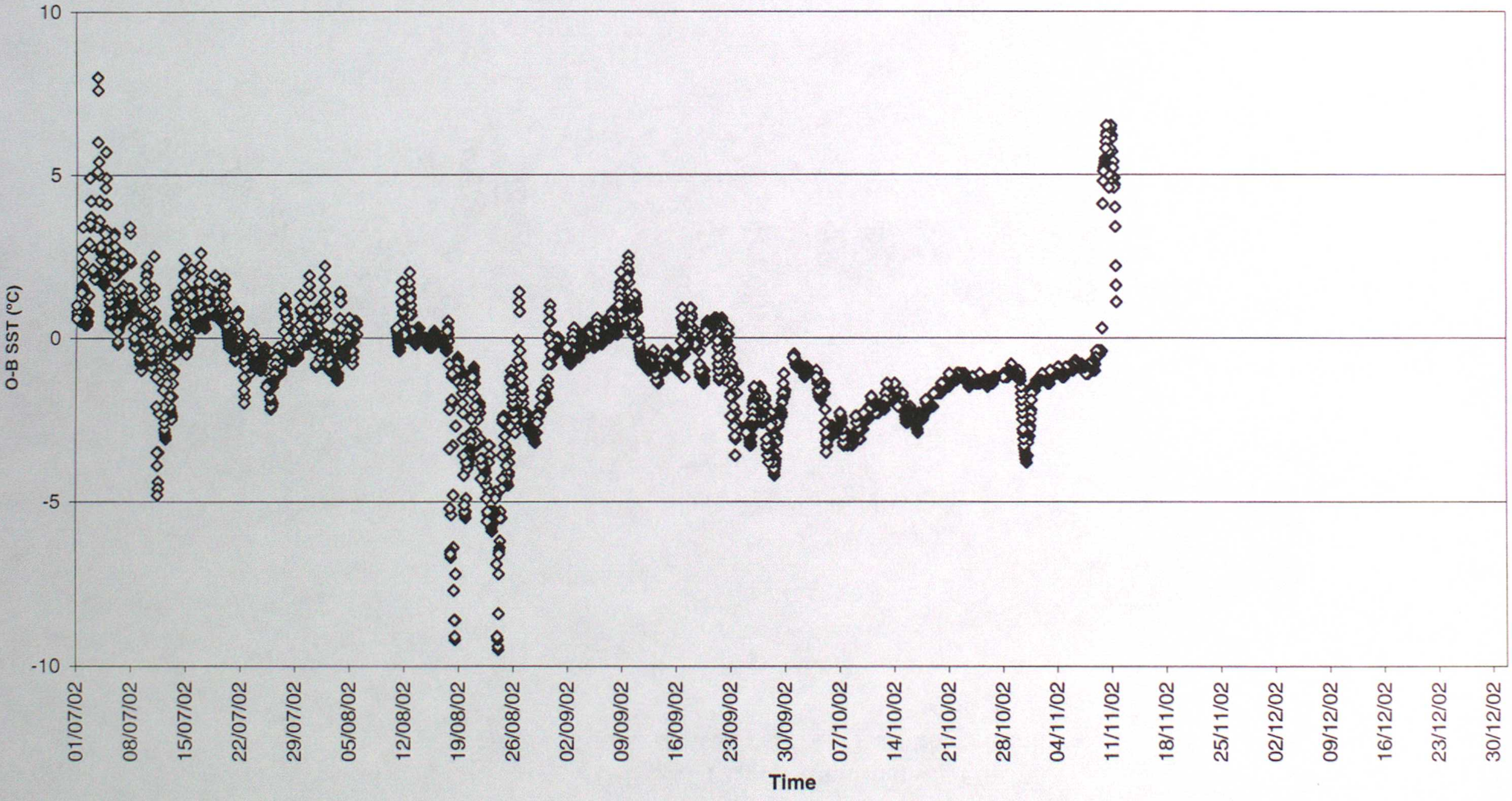
O-B SST (ºC) for identifier 45151
Number of obs. plotted = 1984   Number of outliers = 0



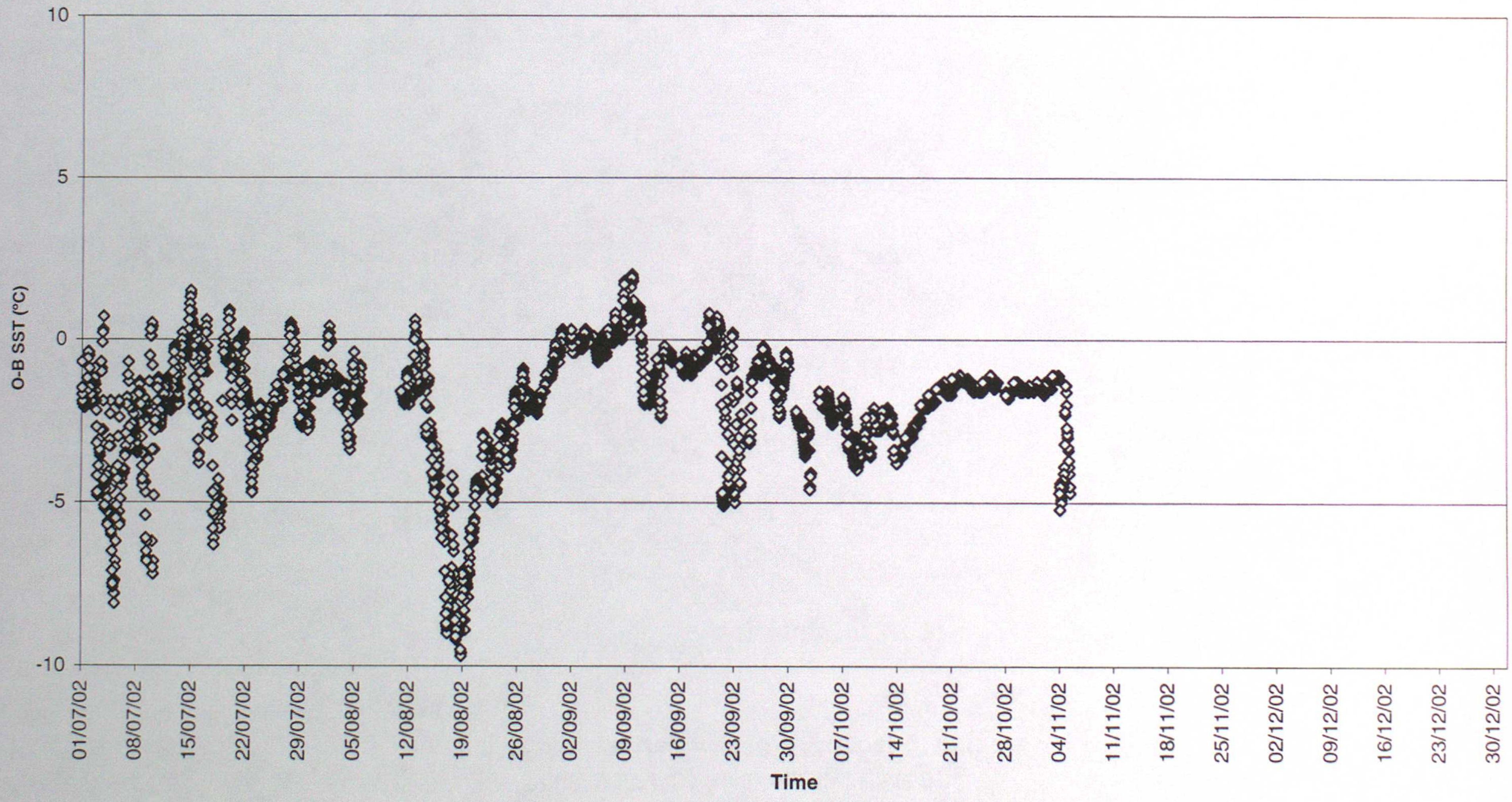


O-B SST (ºC) for identifier 45154

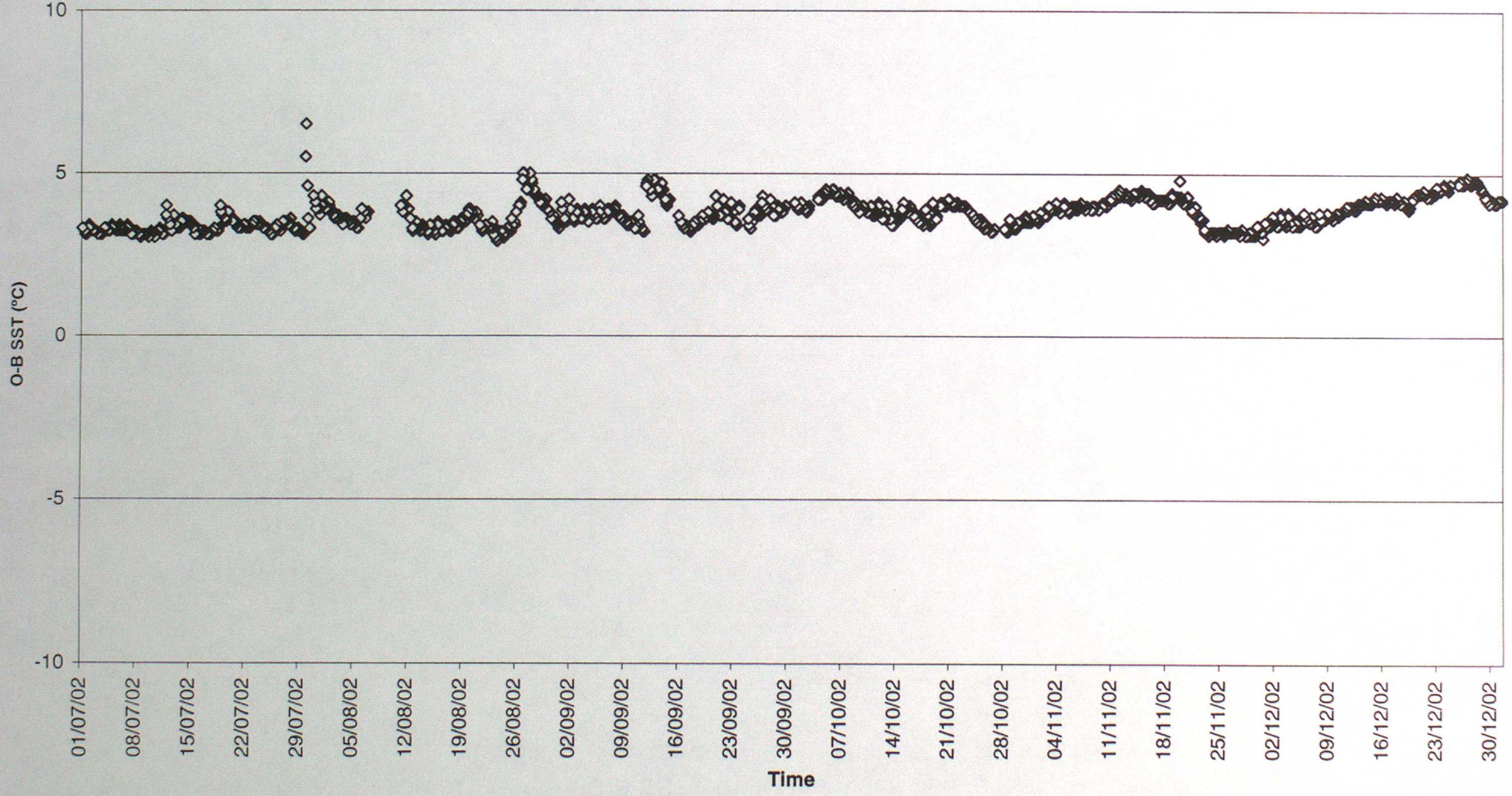
Number of obs. plotted = 2940 Number of outliers = 8



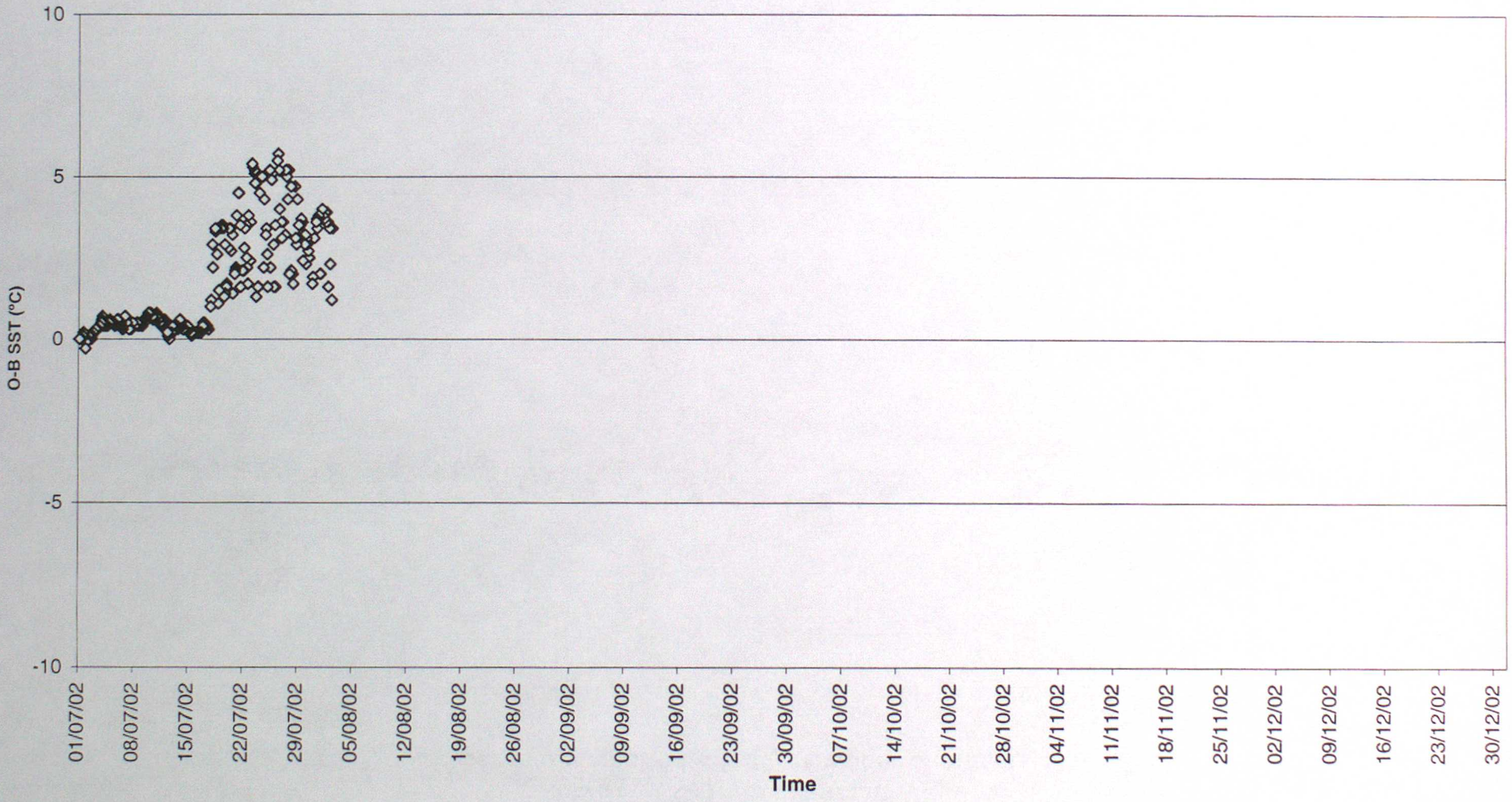
O-B SST (°C) for identifier 45159
Number of obs. plotted = 2910 Number of outliers = 0

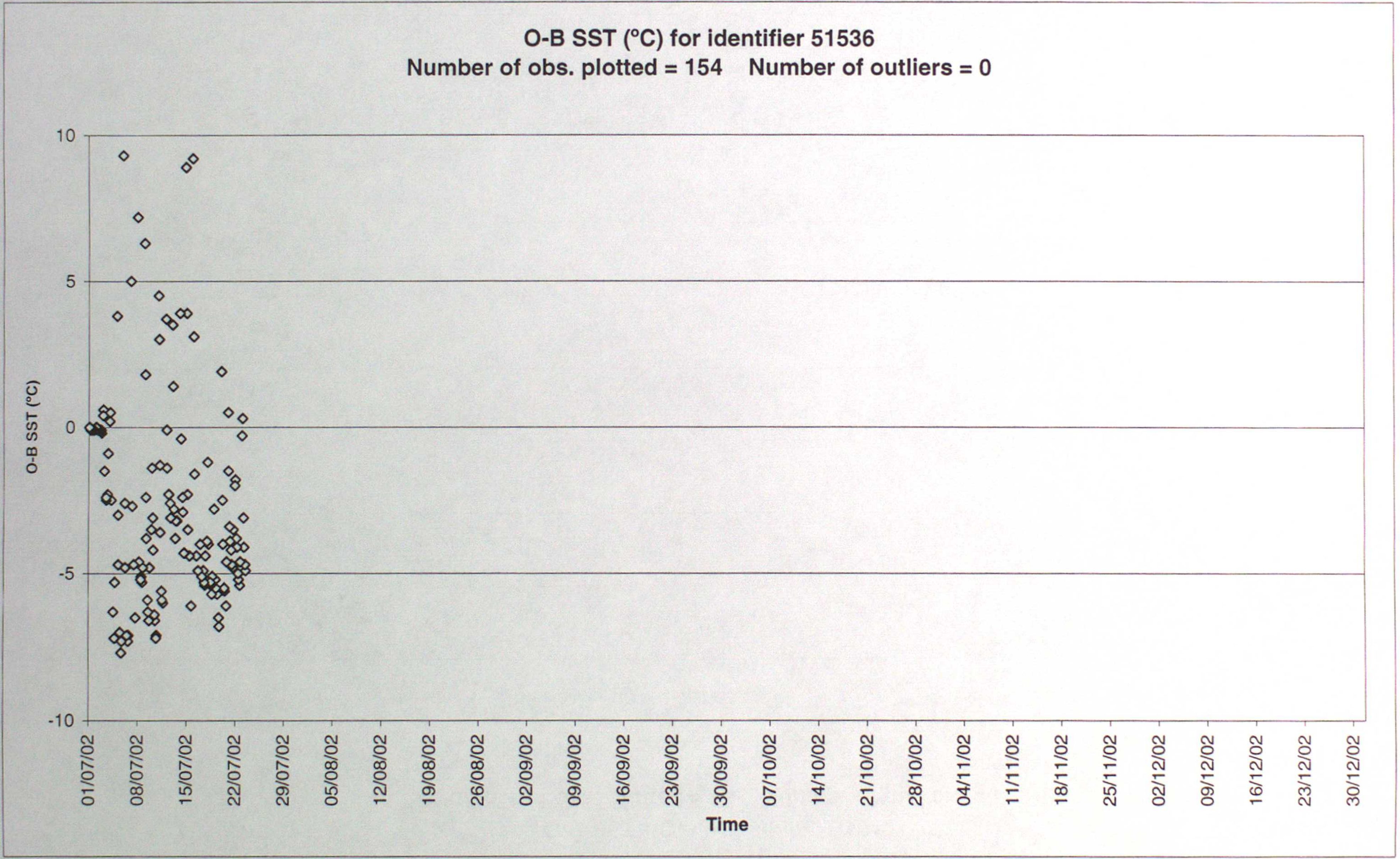


O-B SST (°C) for identifier 45160
Number of obs. plotted = 2774   Number of outliers = 0


O-B SST (°C) for identifier 46972
Number of obs. plotted = 1220   Number of outliers = 1

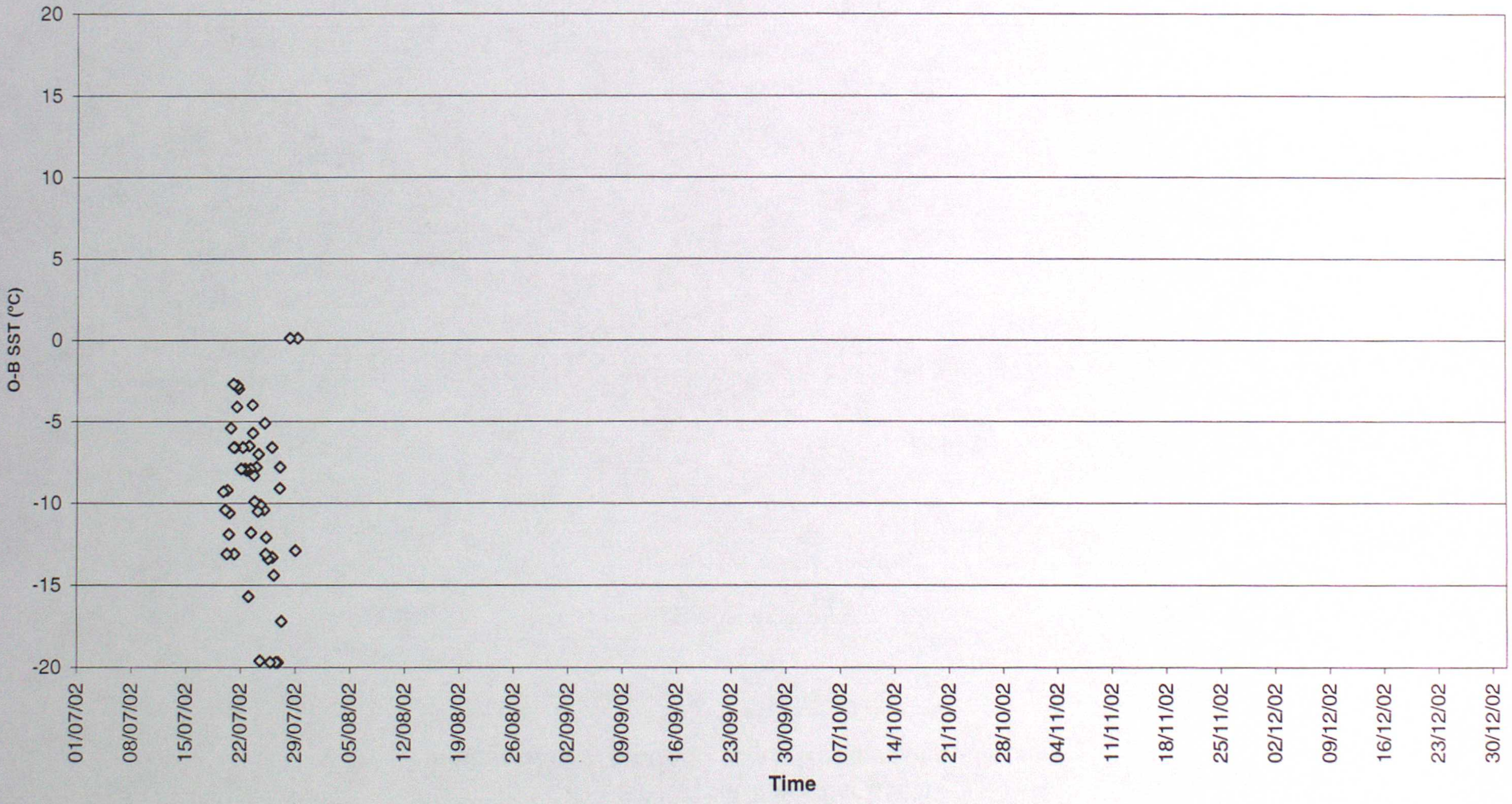
O-B SST (°C) for identifier 46974
Number of obs. plotted = 274   Number of outliers = 0



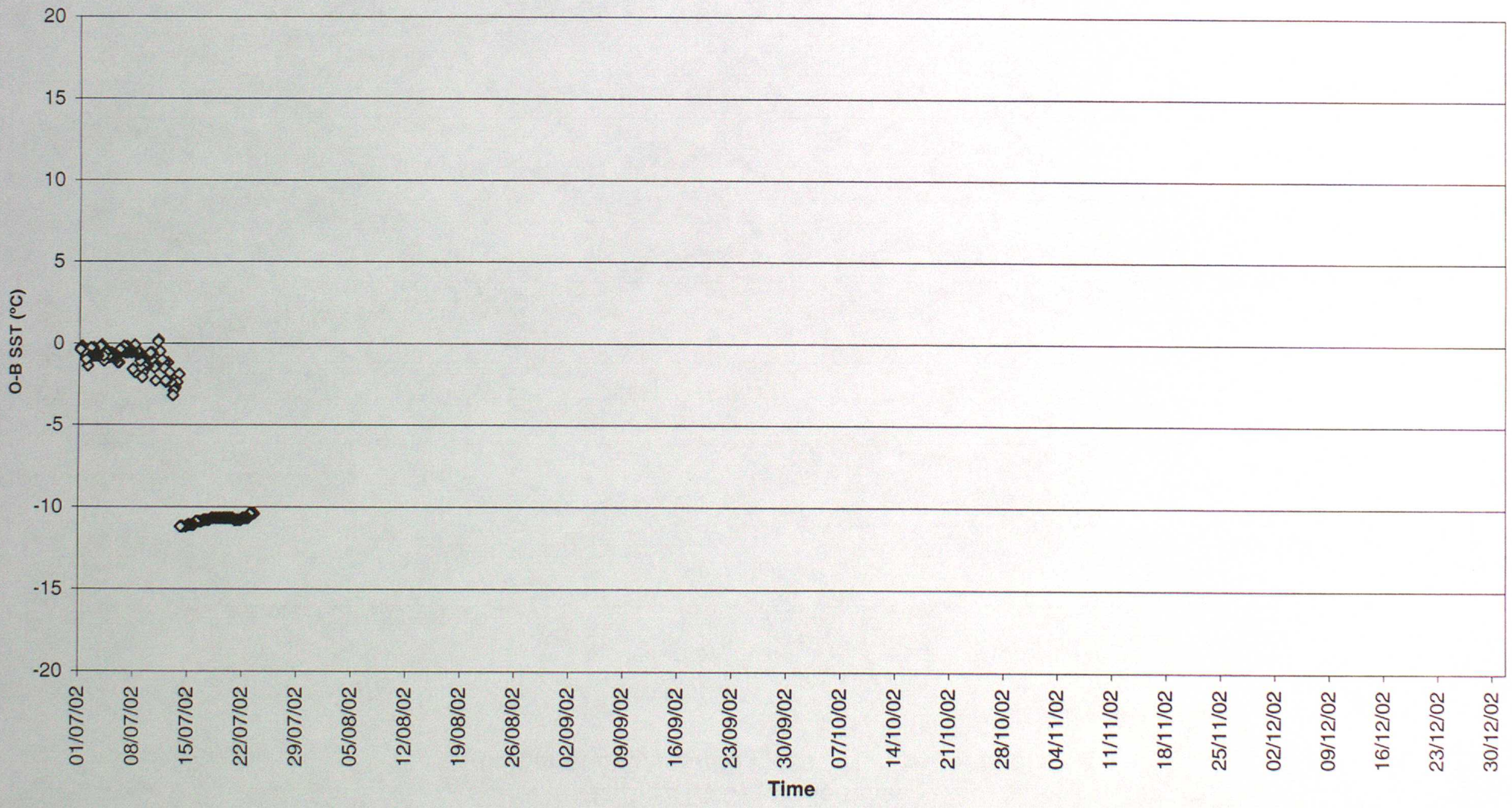


O-B SST (°C) for identifier 51536
Number of obs. plotted = 154   Number of outliers = 0

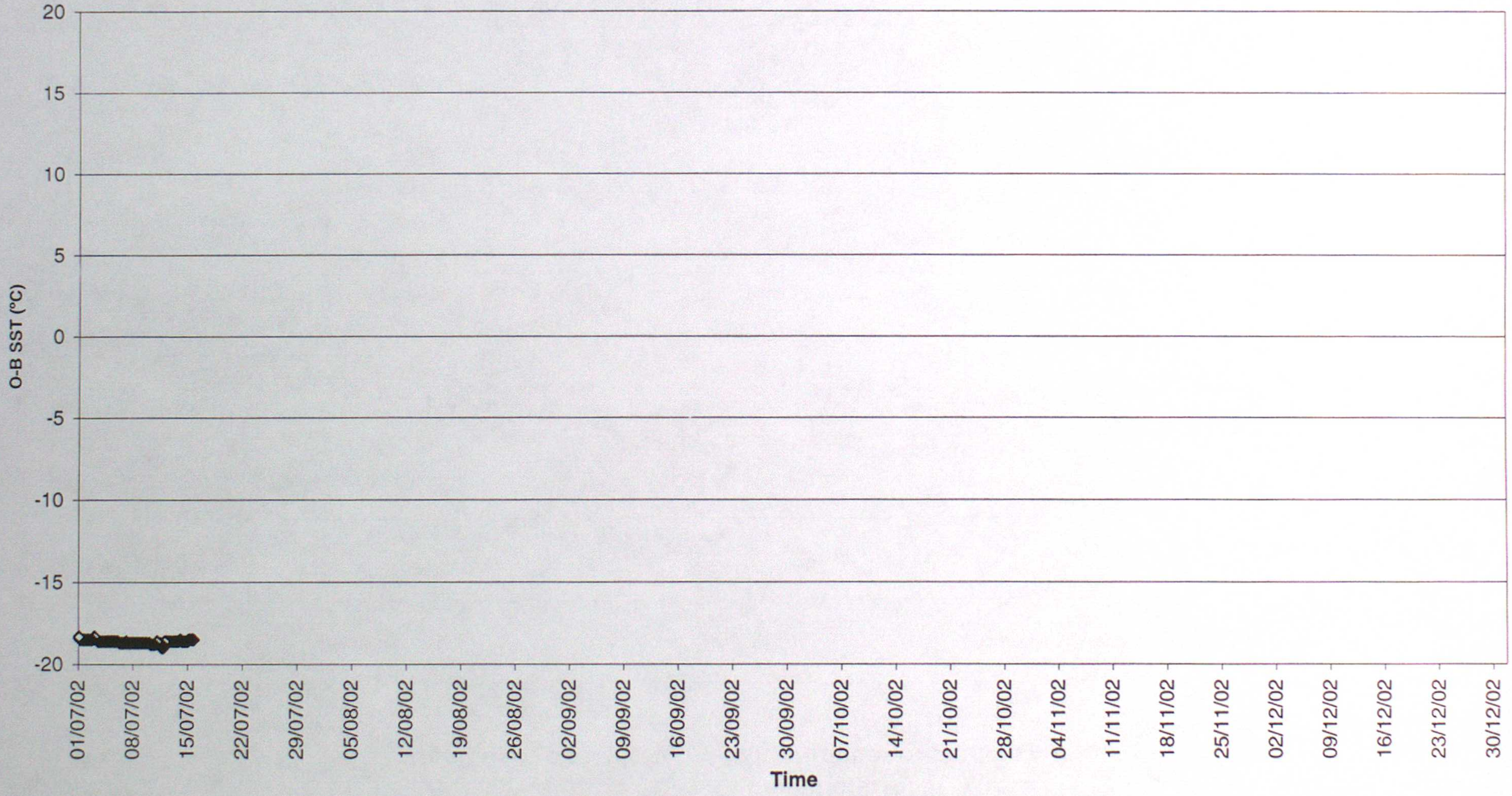
O-B SST (°C) for identifier 51642
Number of obs. plotted = 49   Number of outliers = 0

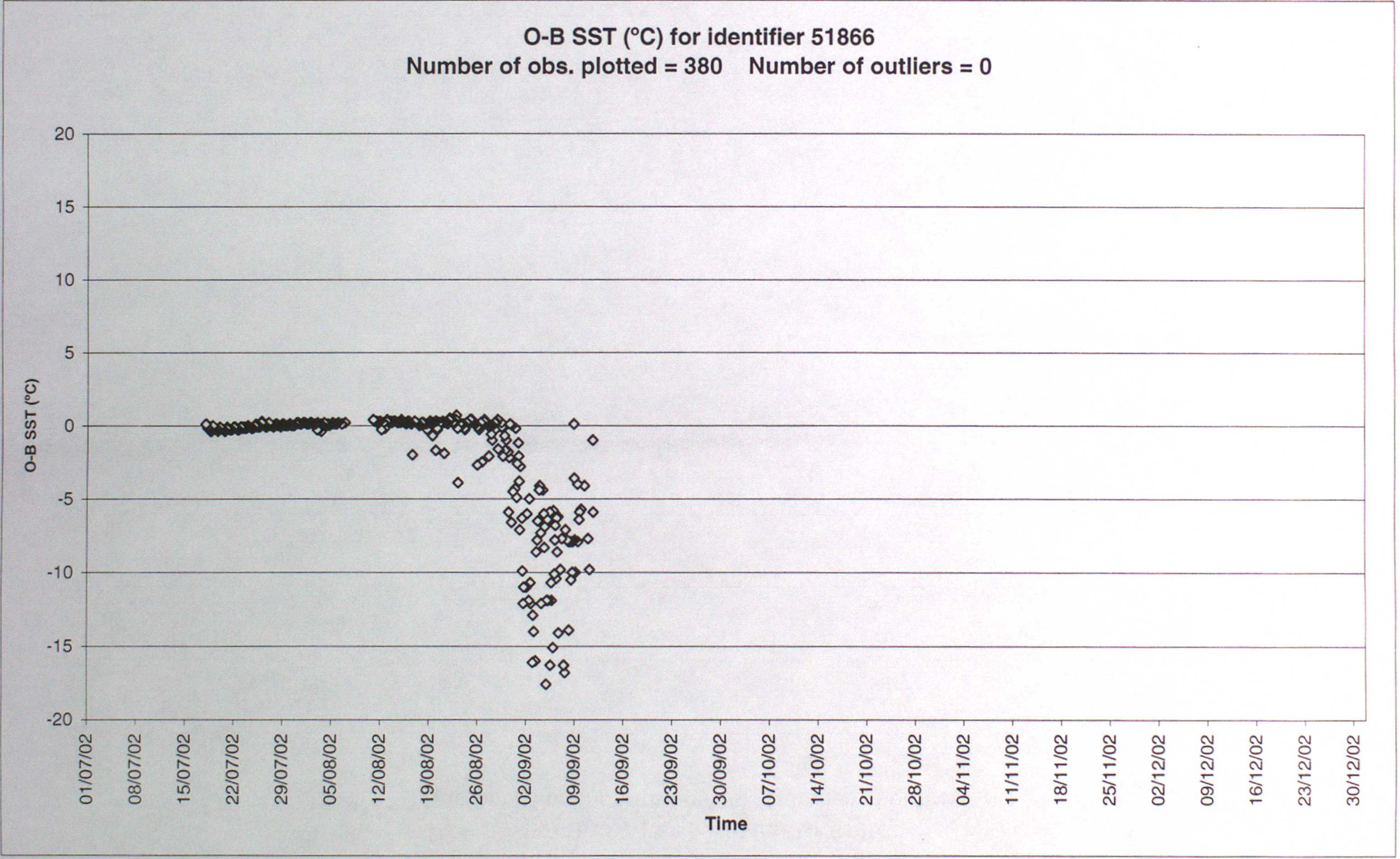


O-B SST (°C) for identifier 51650
Number of obs. plotted = 161   Number of outliers = 0

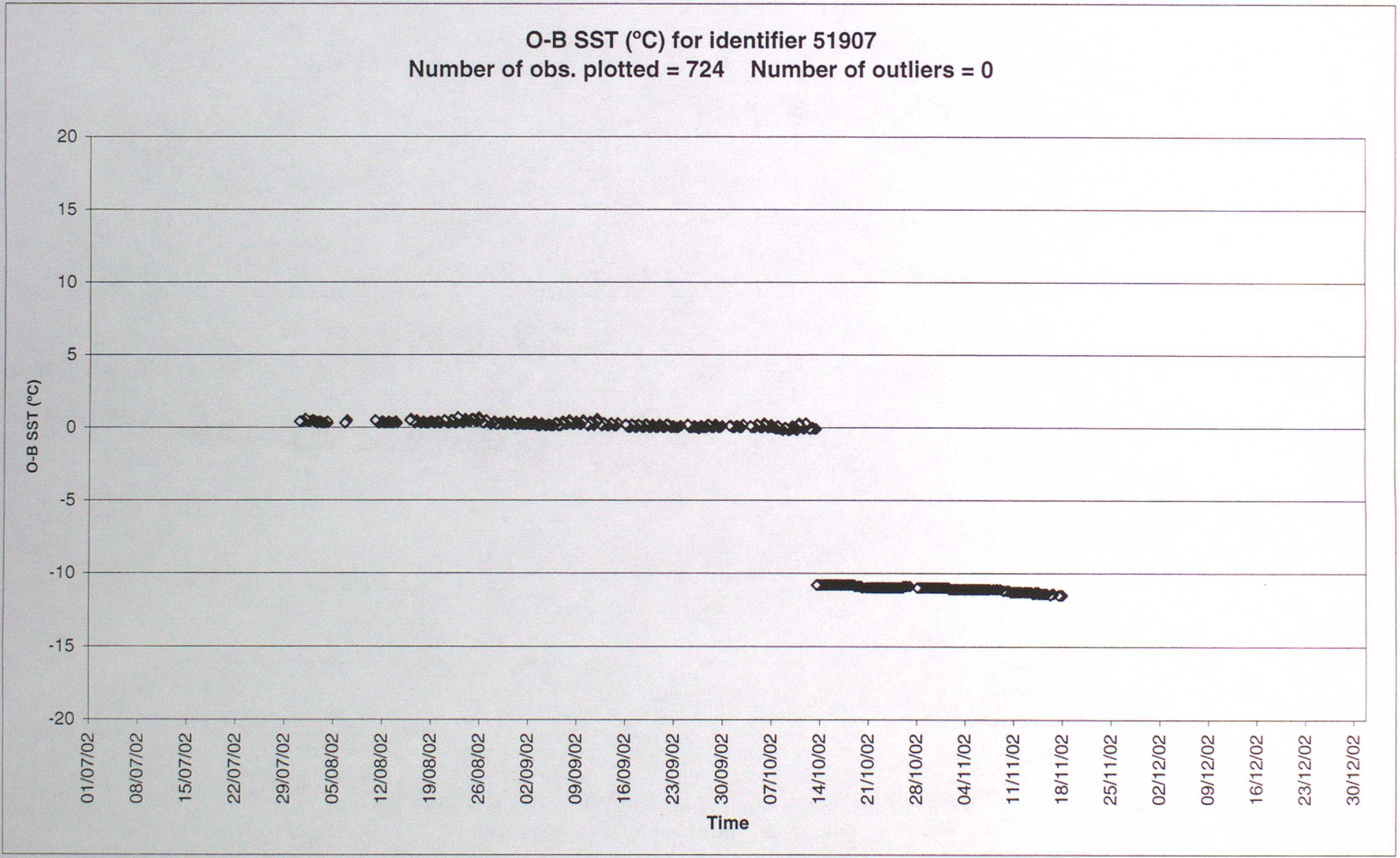


O-B SST (°C) for identifier 51733
Number of obs. plotted = 130   Number of outliers = 0





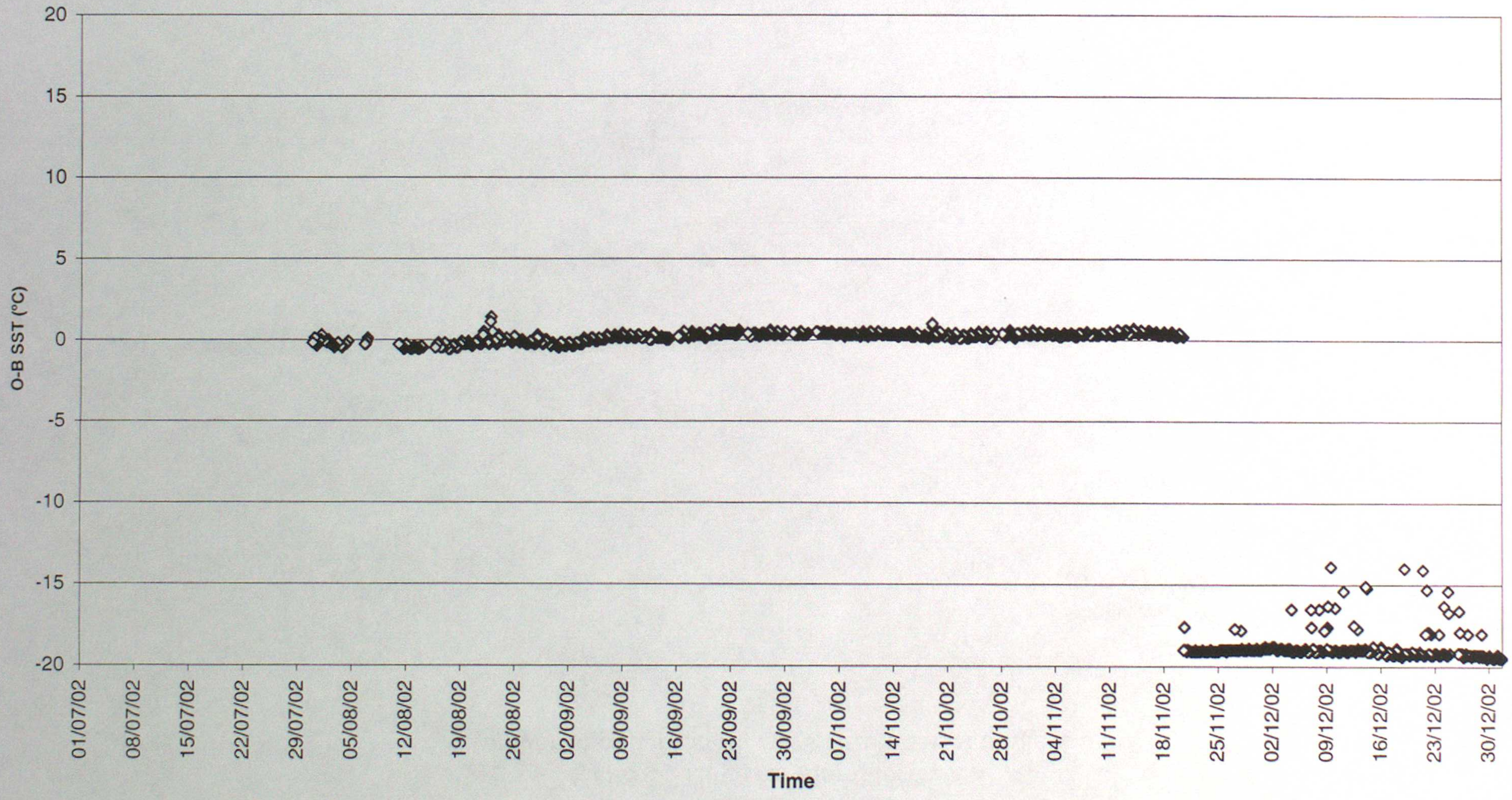
O-B SST (°C) for identifier 51866
Number of obs. plotted = 380   Number of outliers = 0

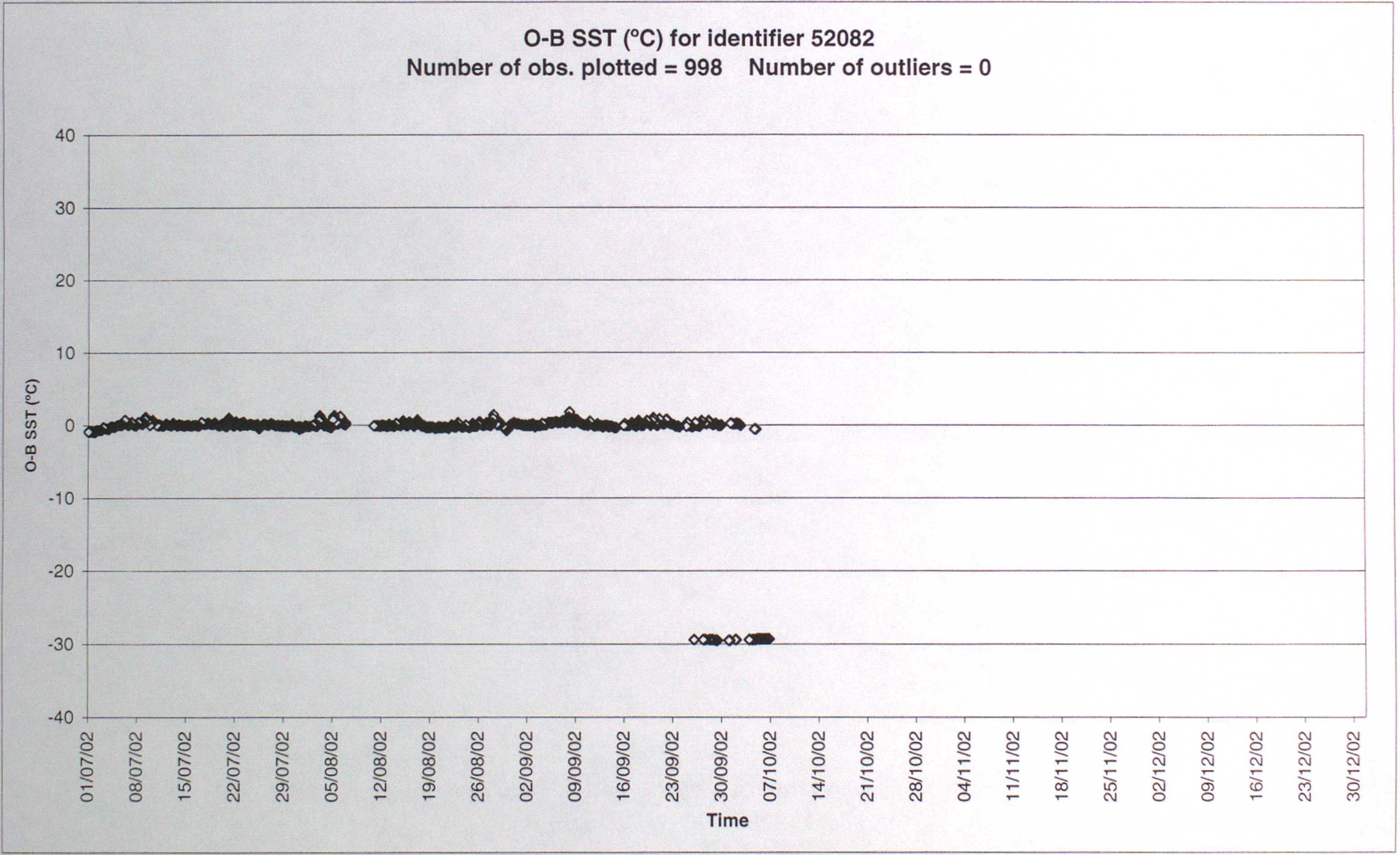


O-B SST (°C) for identifier 51907
Number of obs. plotted = 724   Number of outliers = 0

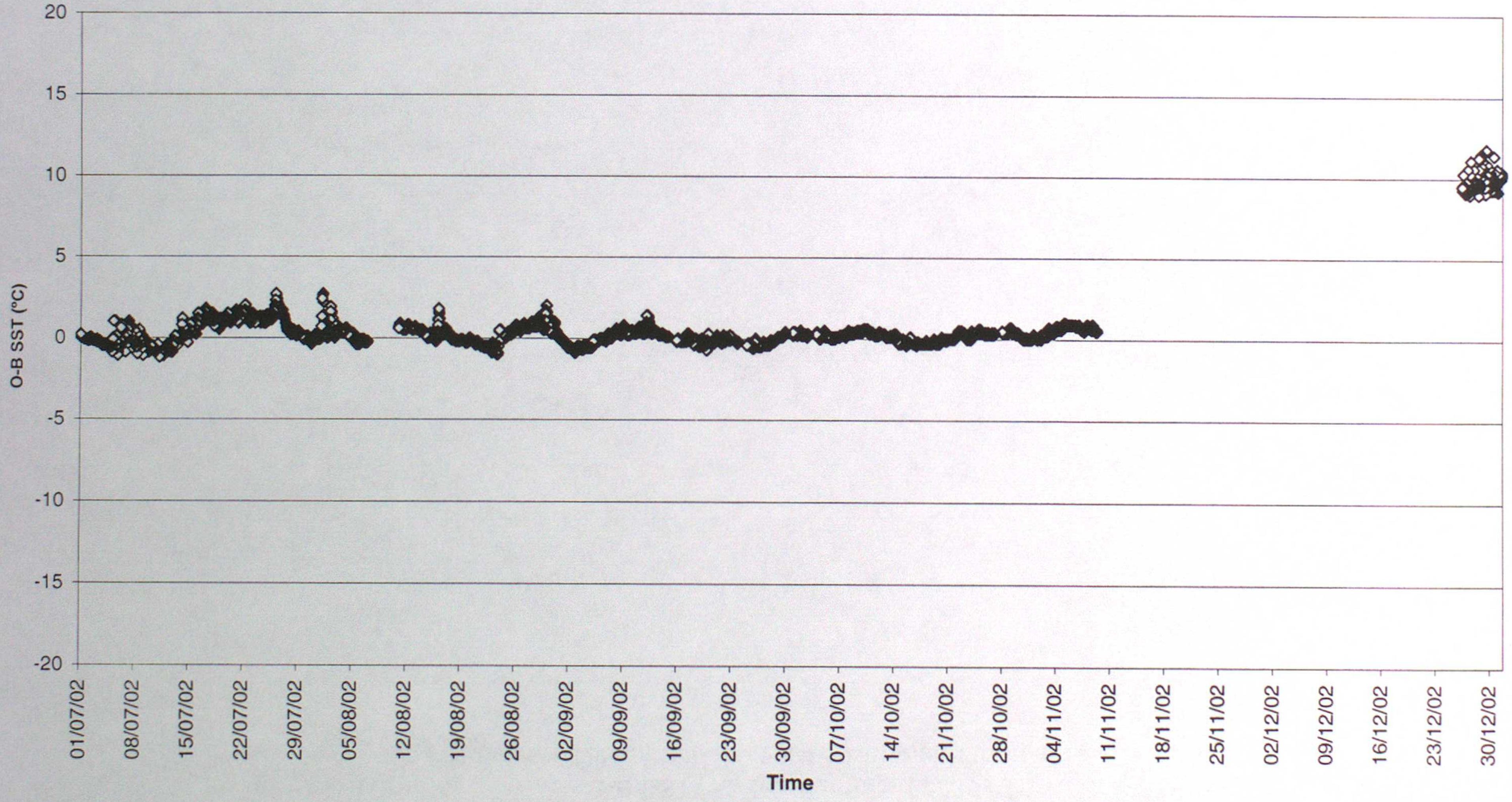
O-B SST (°C) for identifier 51909

Number of obs. plotted = 1079   Number of outliers = 0



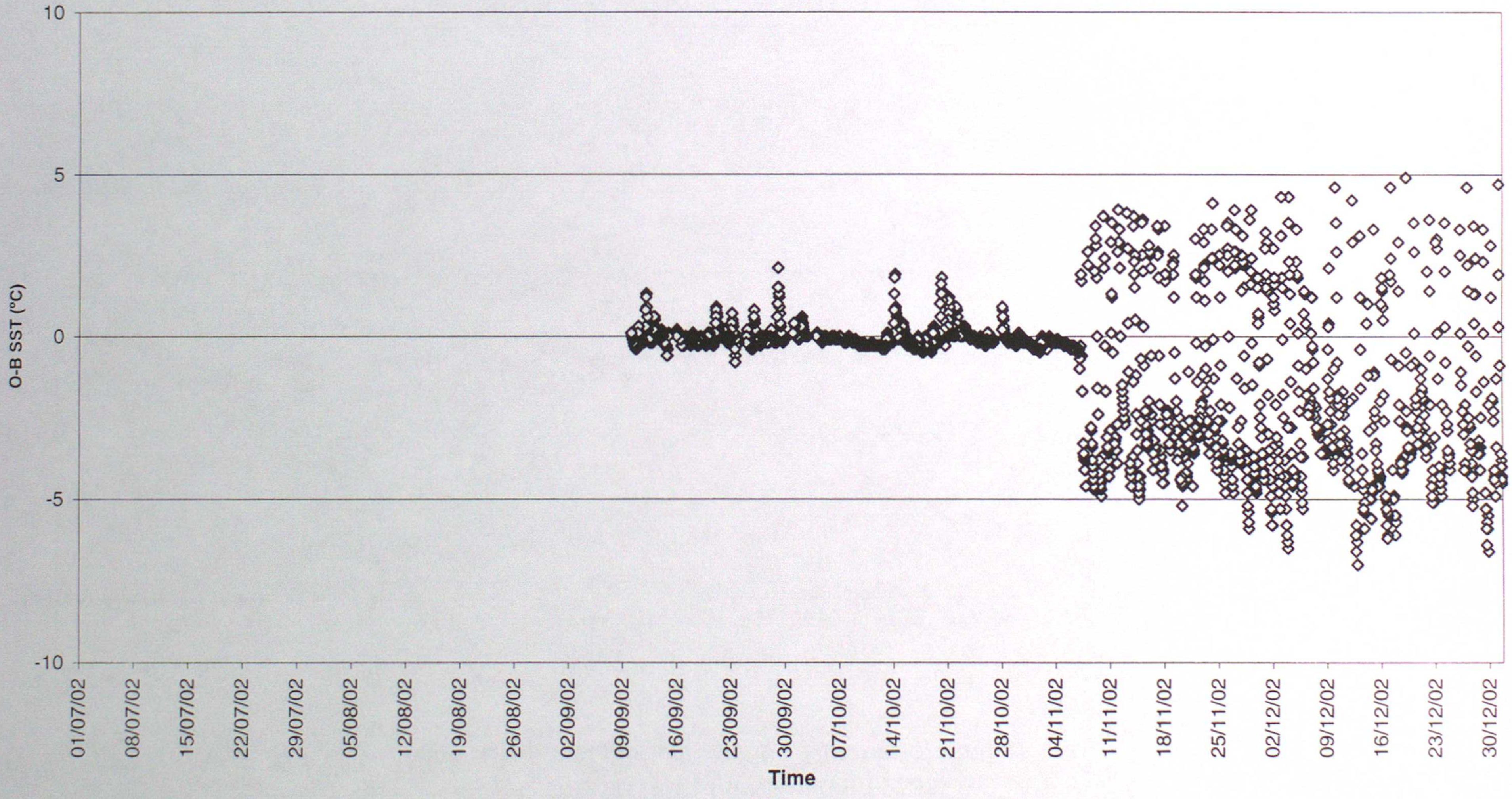

O-B SST (°C) for identifier 52082
Number of obs. plotted = 998   Number of outliers = 0
O-B SST (°C)
40
30
20
10
0
-10
-20
-30
-40
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time

O-B SST (°C) for identifier 52533
Number of obs. plotted = 2900   Number of outliers = 0

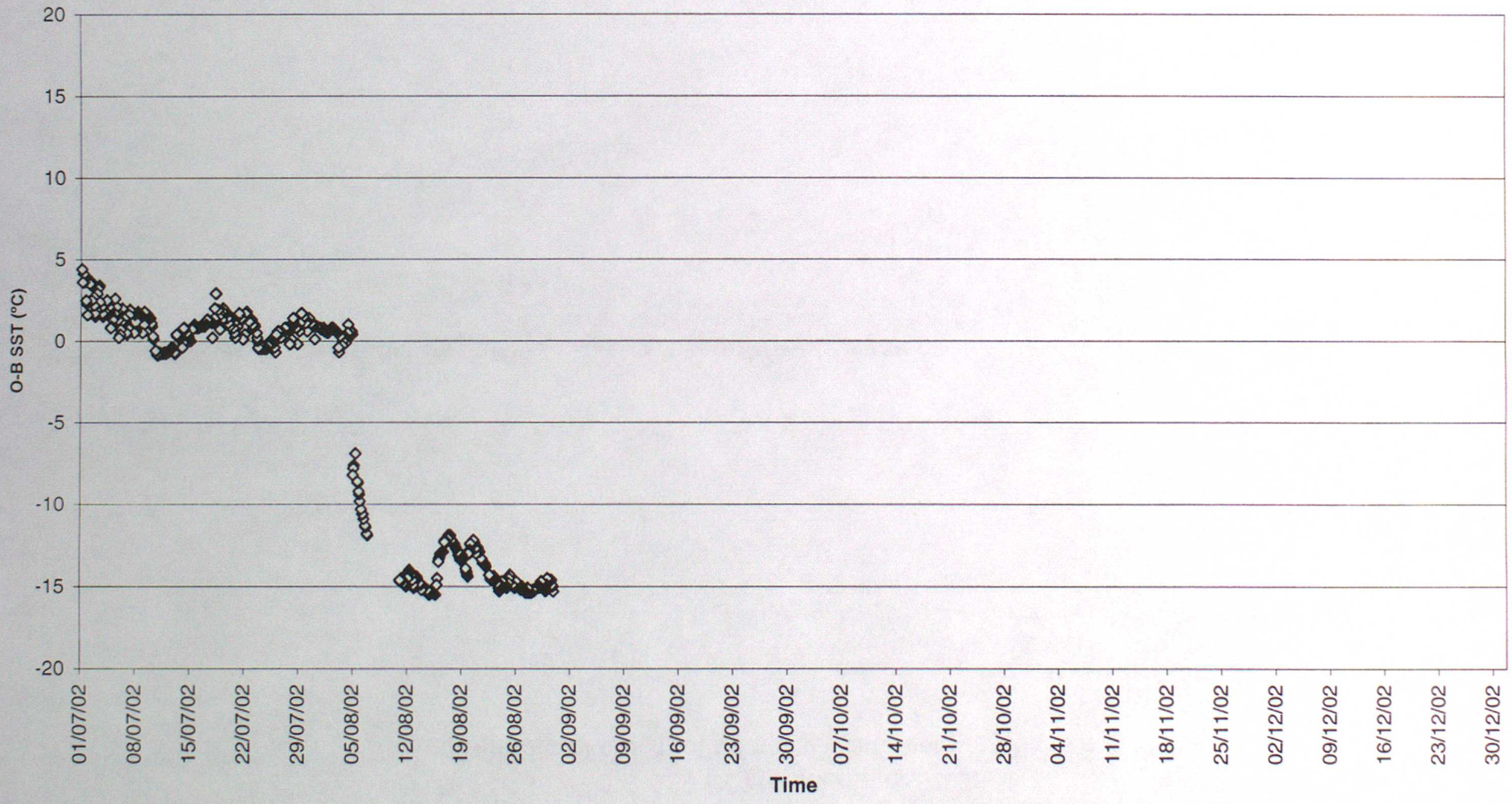


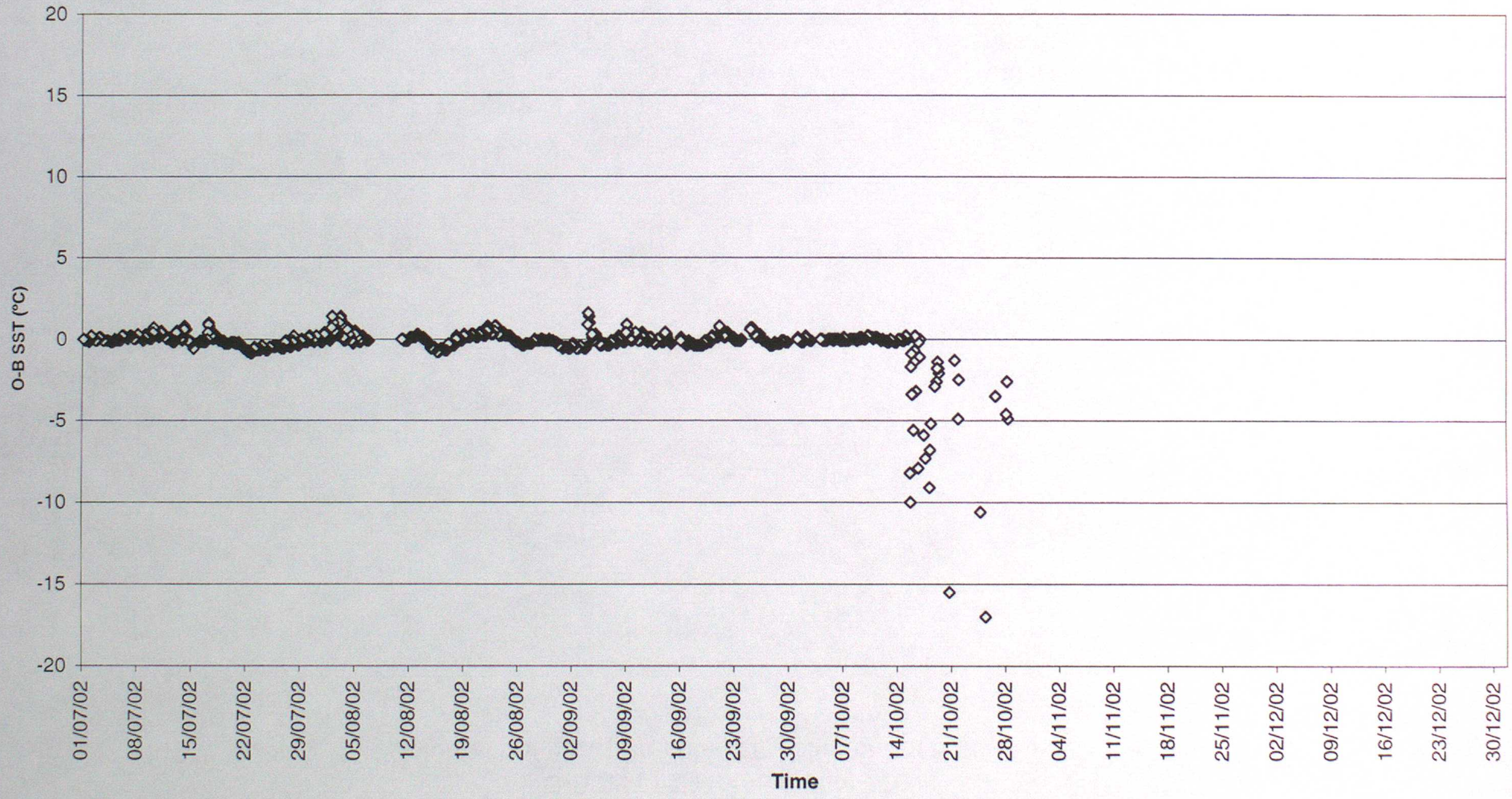
O-B SST (°C) for identifier 52536

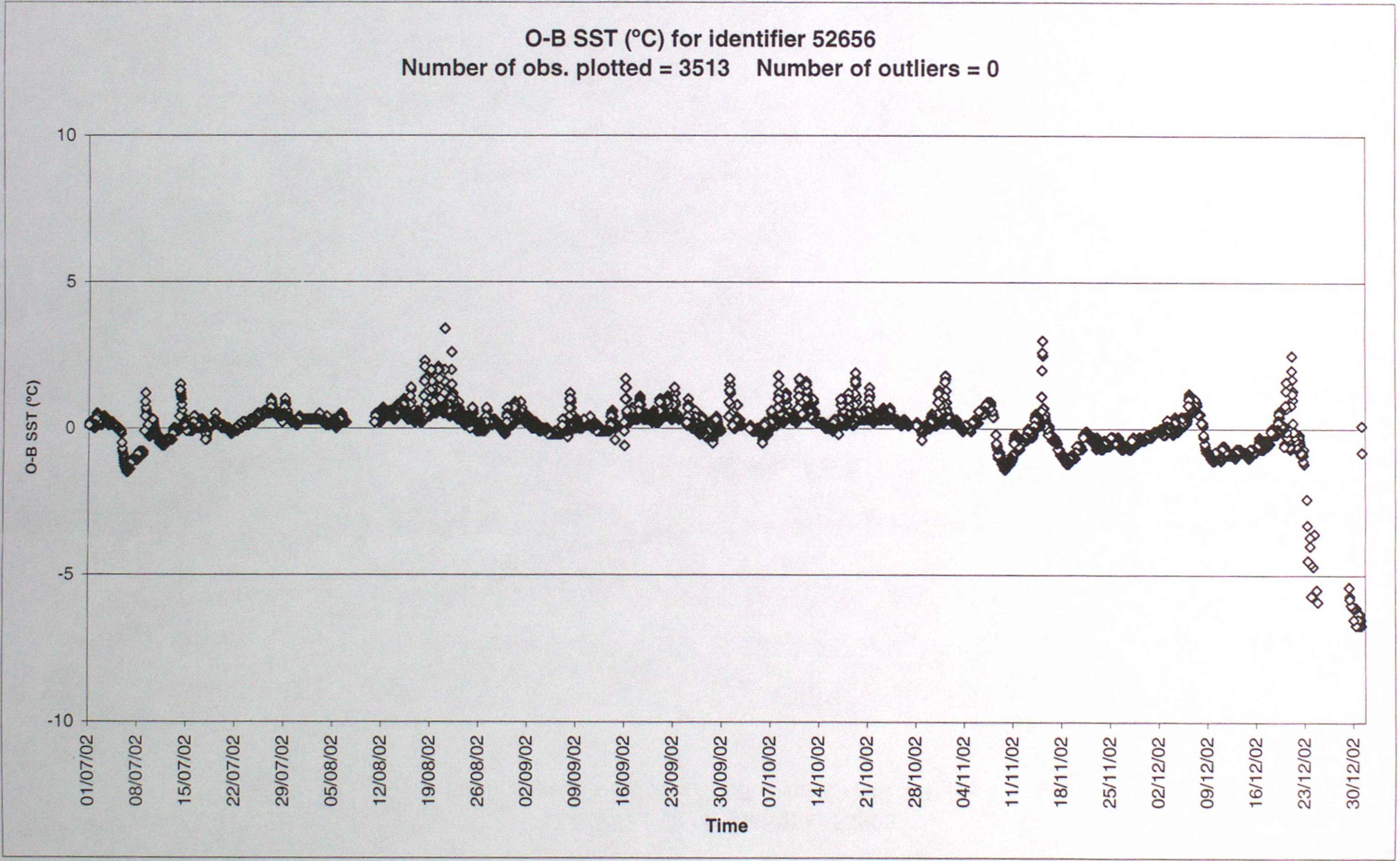
Number of obs. plotted = 2004   Number of outliers = 0



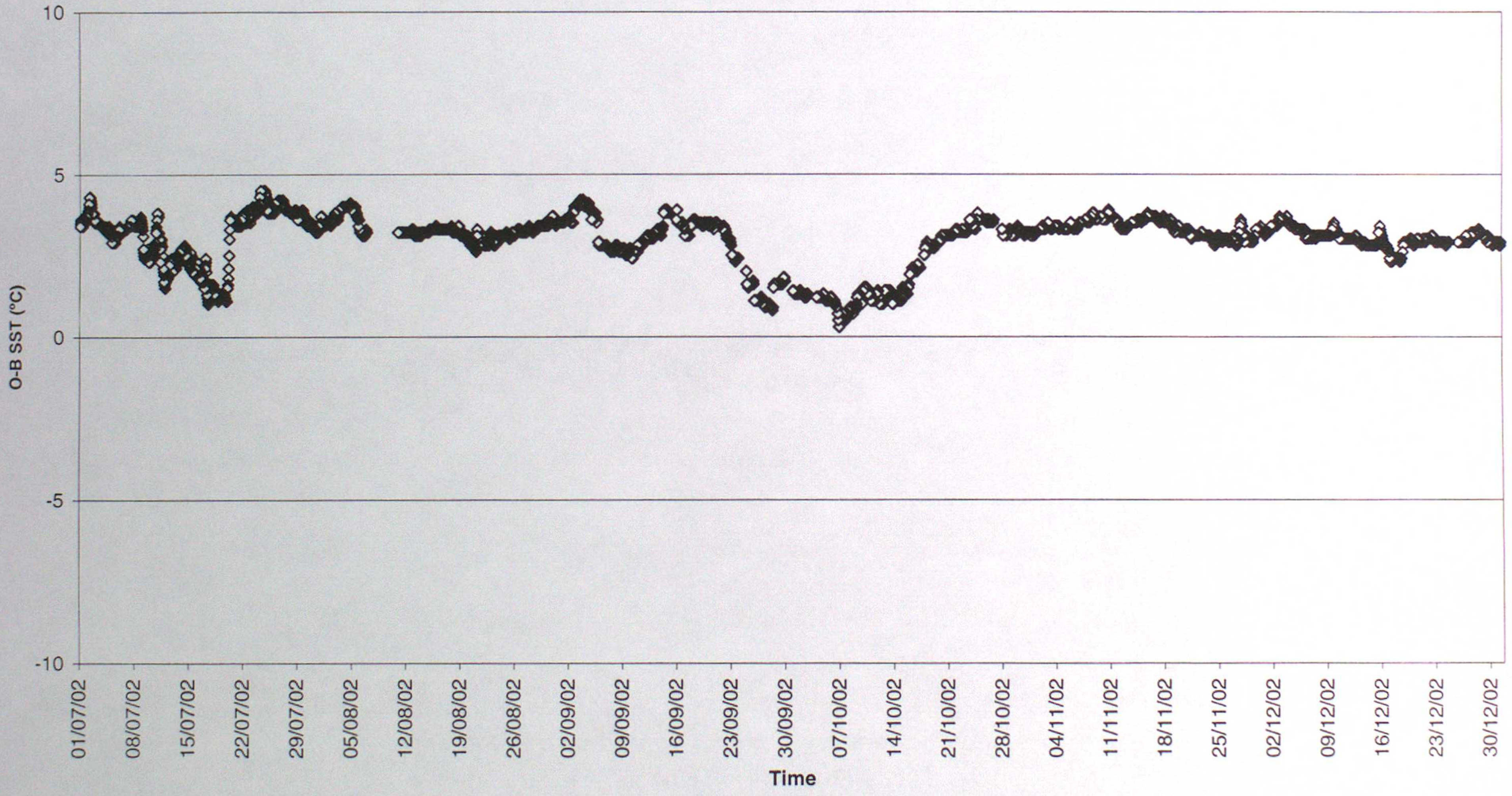
O-B SST (°C) for identifier 52606
Number of obs. plotted = 525   Number of outliers = 0

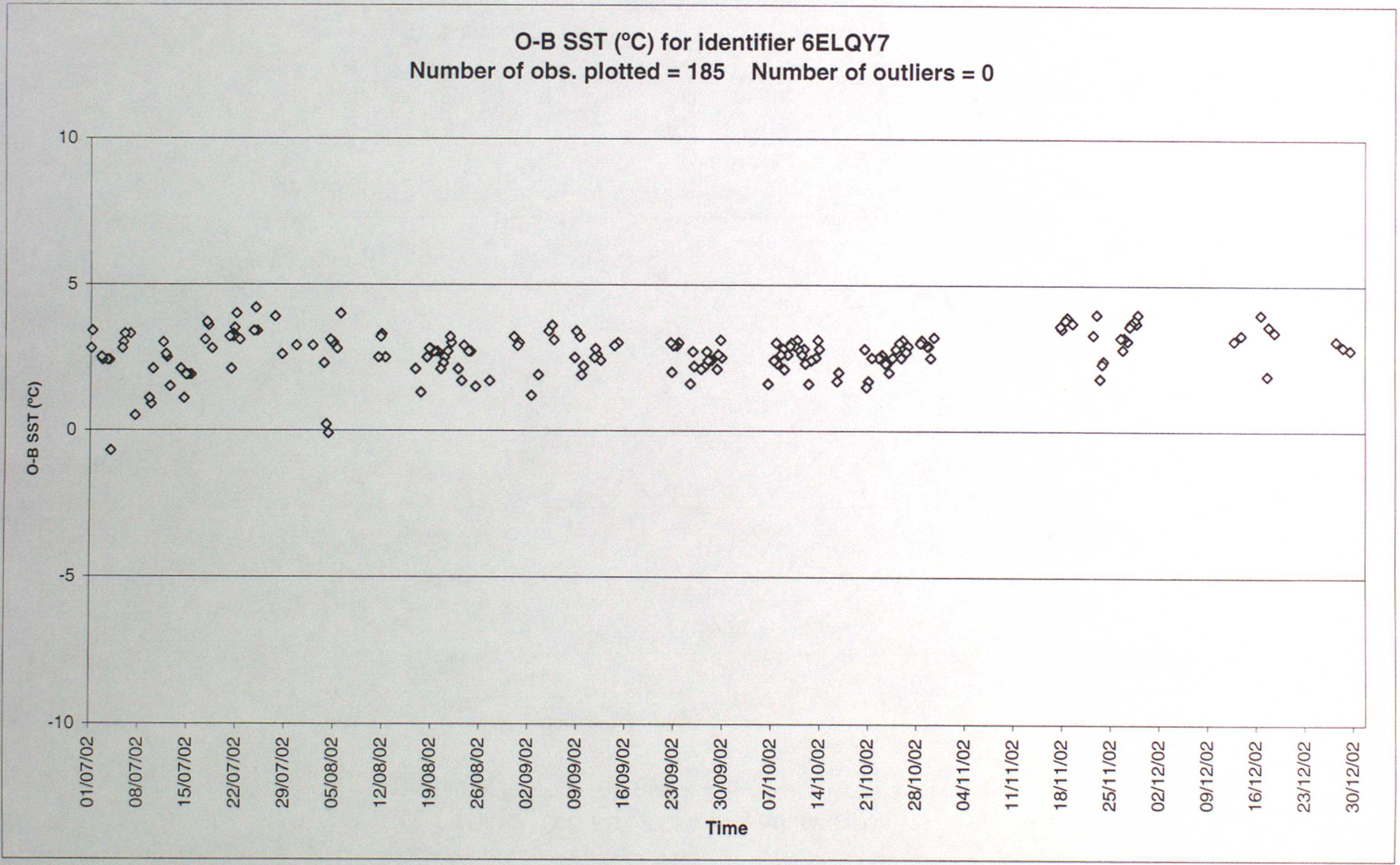



O-B SST (°C) for identifier 52620
Number of obs. plotted = 926   Number of outliers = 4


O-B SST (°C) for identifier 52656
Number of obs. plotted = 3513   Number of outliers = 0

O-B SST (°C) for identifier 55905
Number of obs. plotted = 3058   Number of outliers = 0

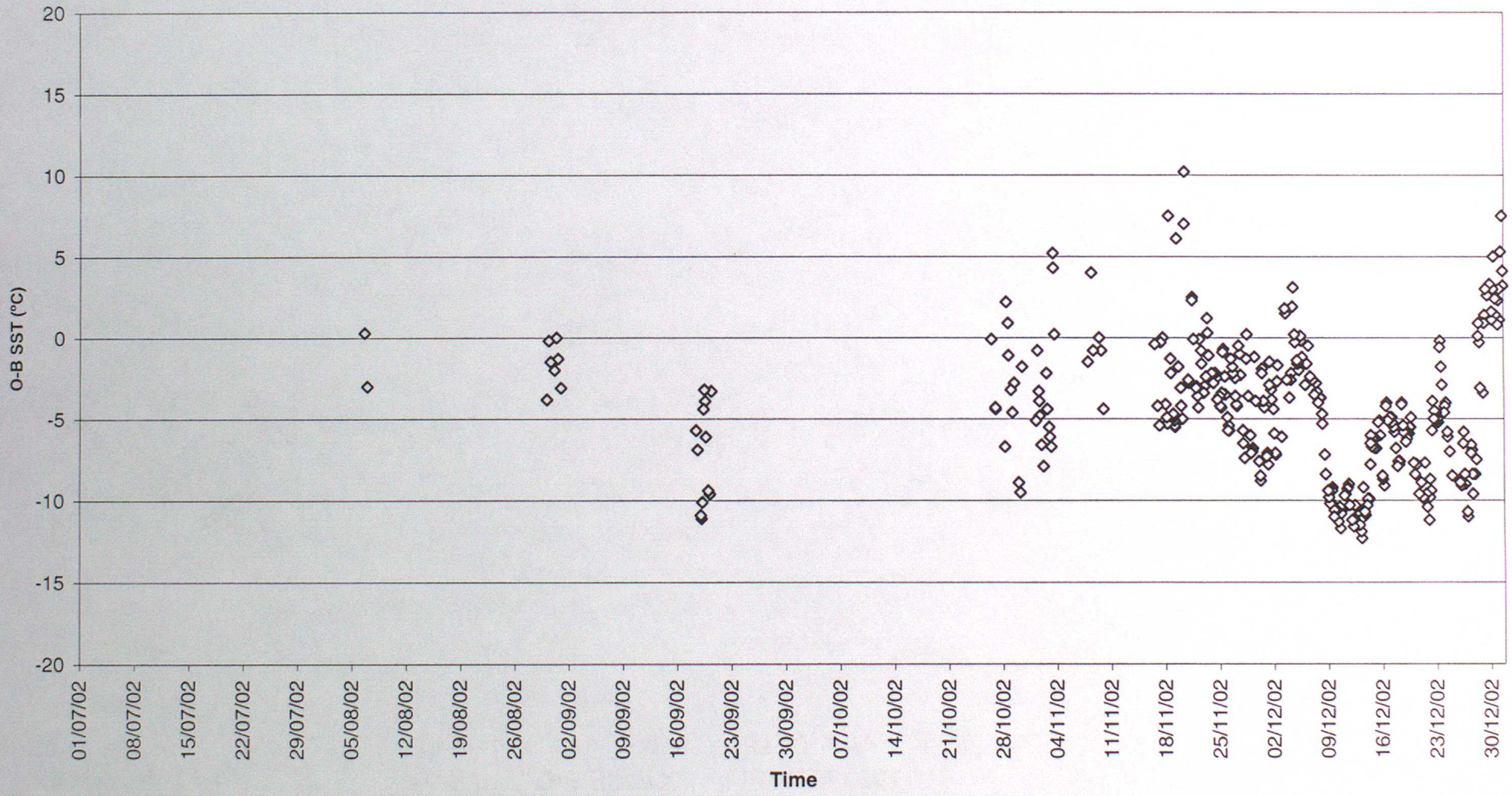




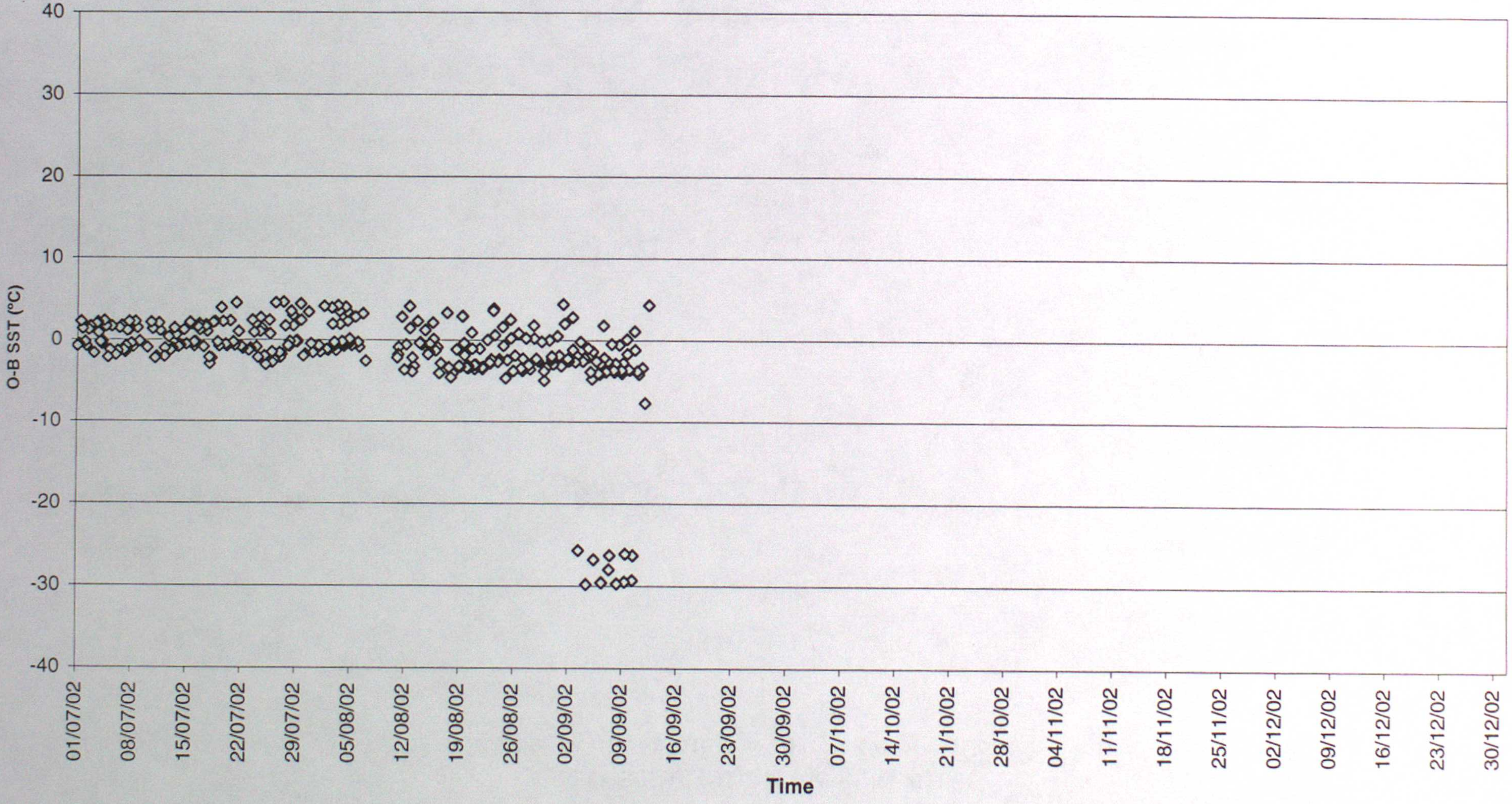
O-B SST (°C) for identifier 6ELQY7
Number of obs. plotted = 185   Number of outliers = 0

O-B SST (°C) for identifier 61532

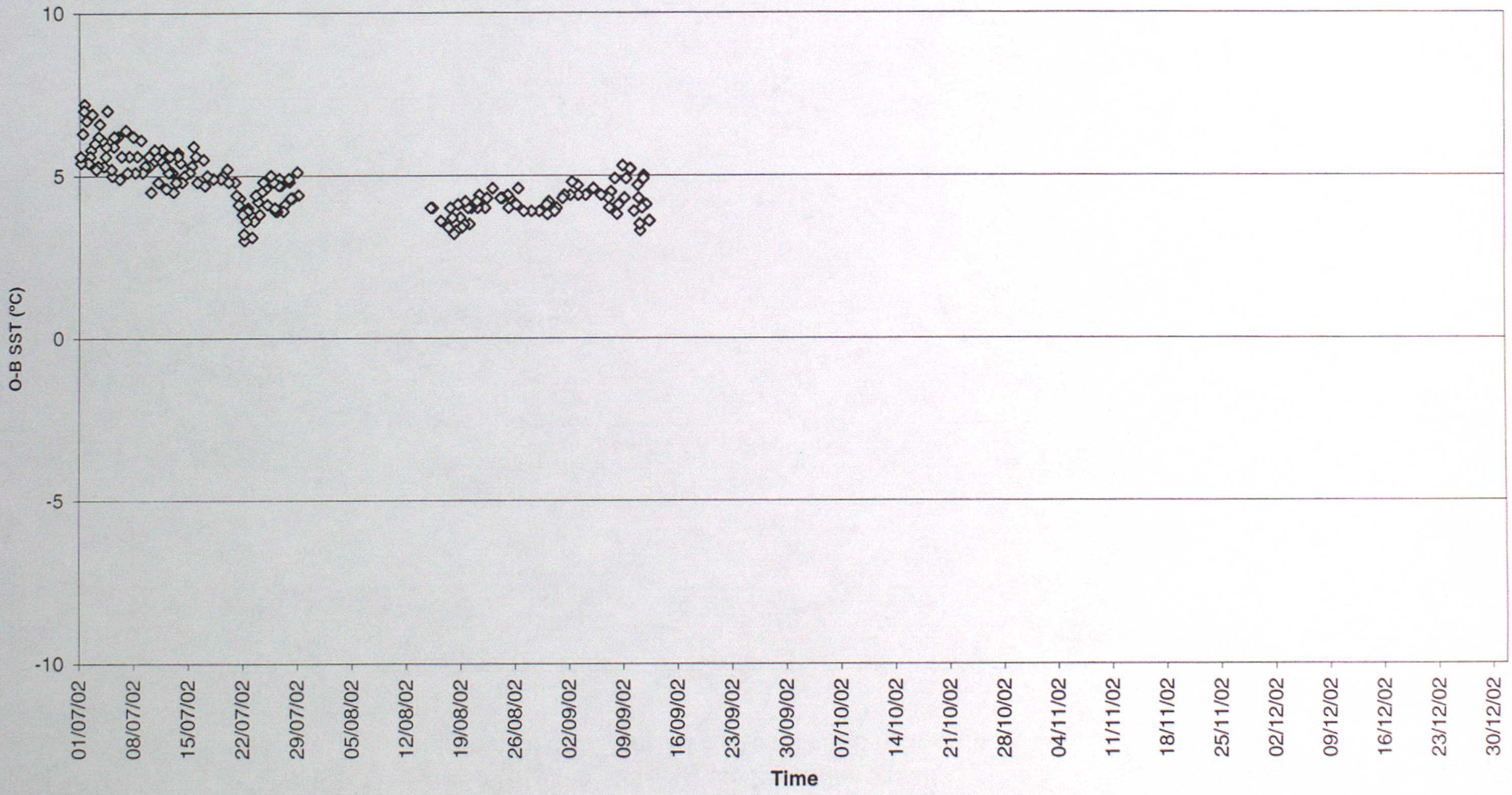
Number of obs. plotted = 346   Number of outliers = 0



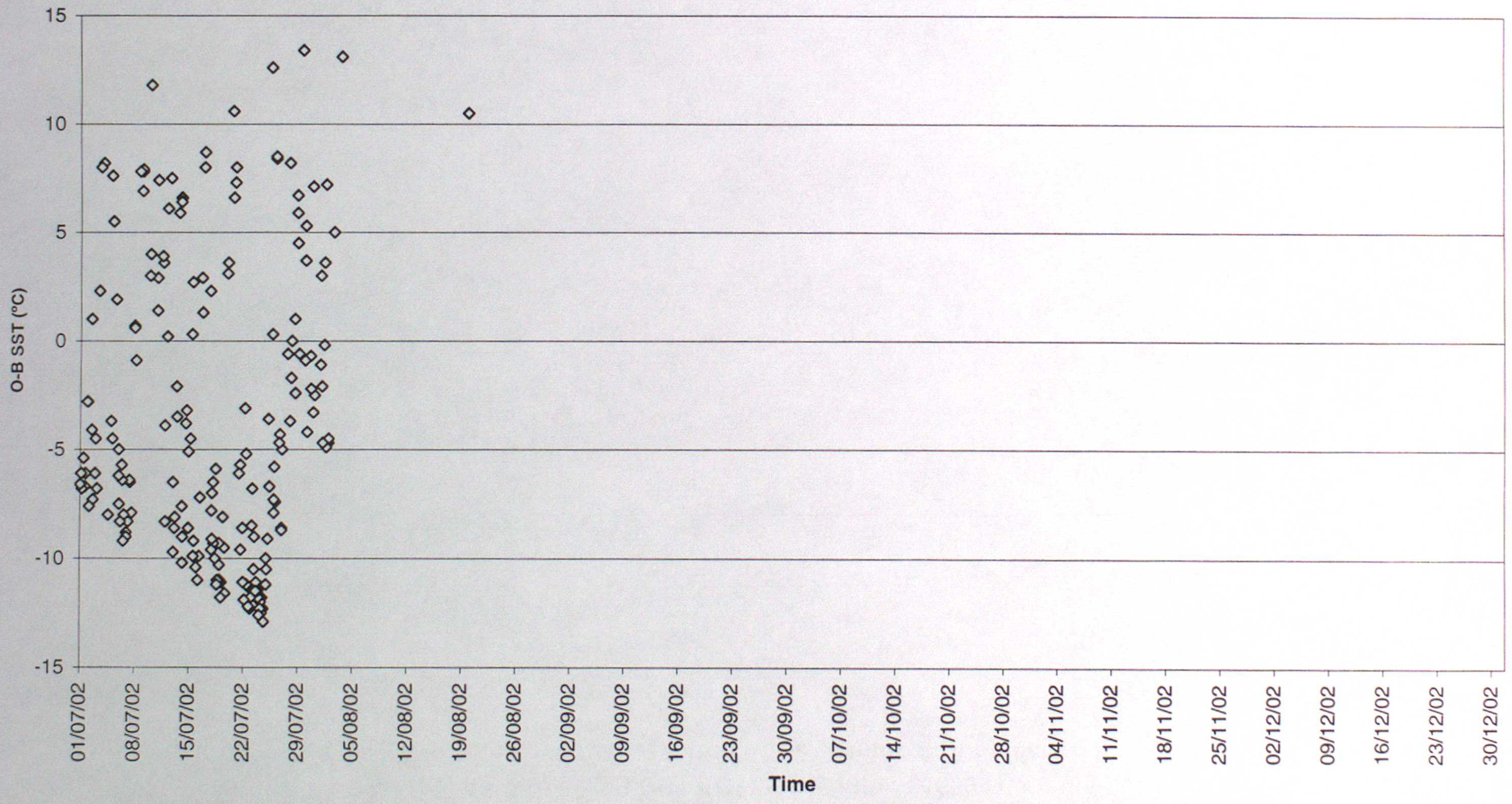
O-B SST (°C) for identifier 61535
Number of obs. plotted = 315 Number of outliers = 0



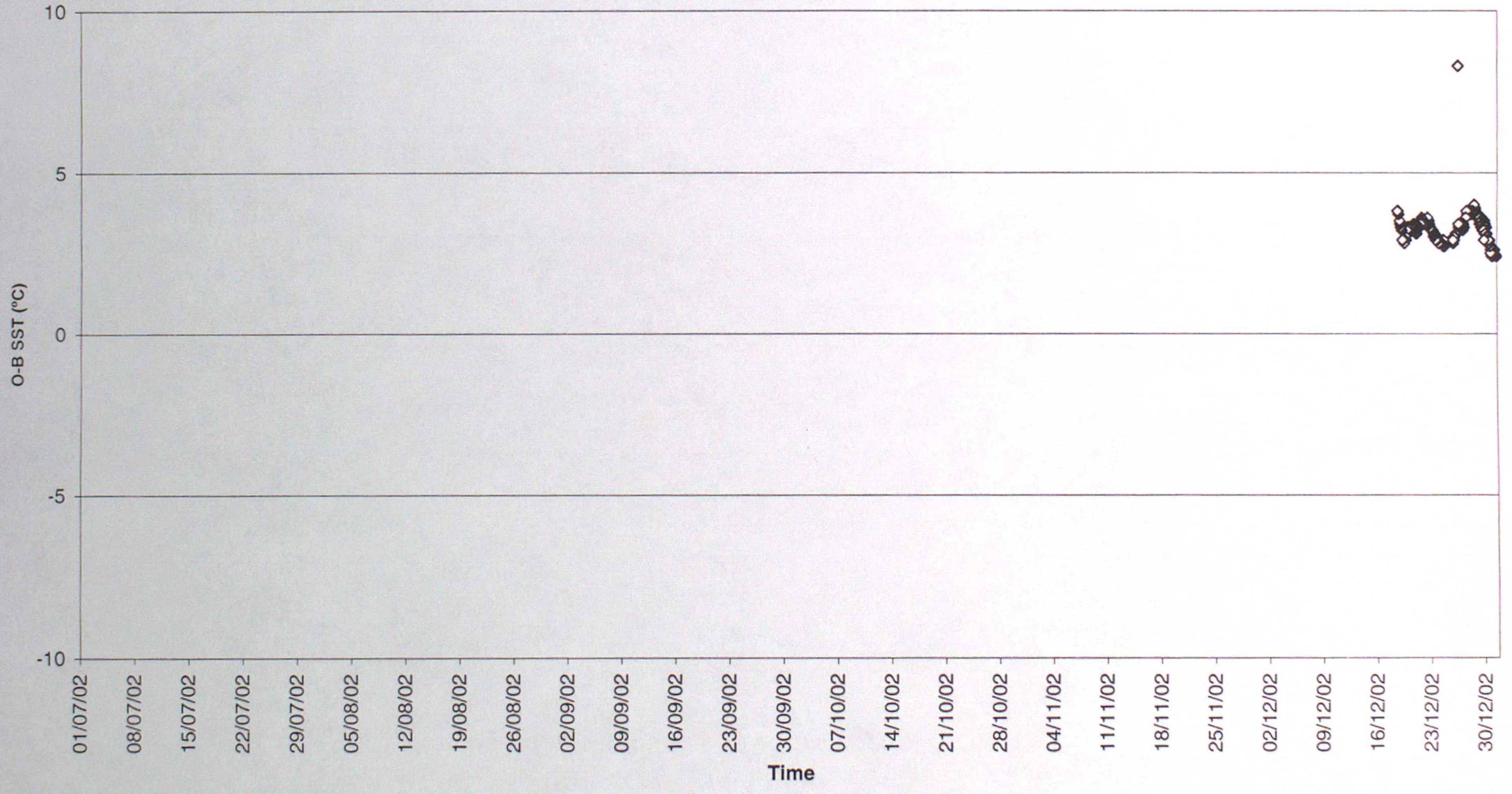
O-B SST (°C) for identifier 61536
Number of obs. plotted = 181   Number of outliers = 0



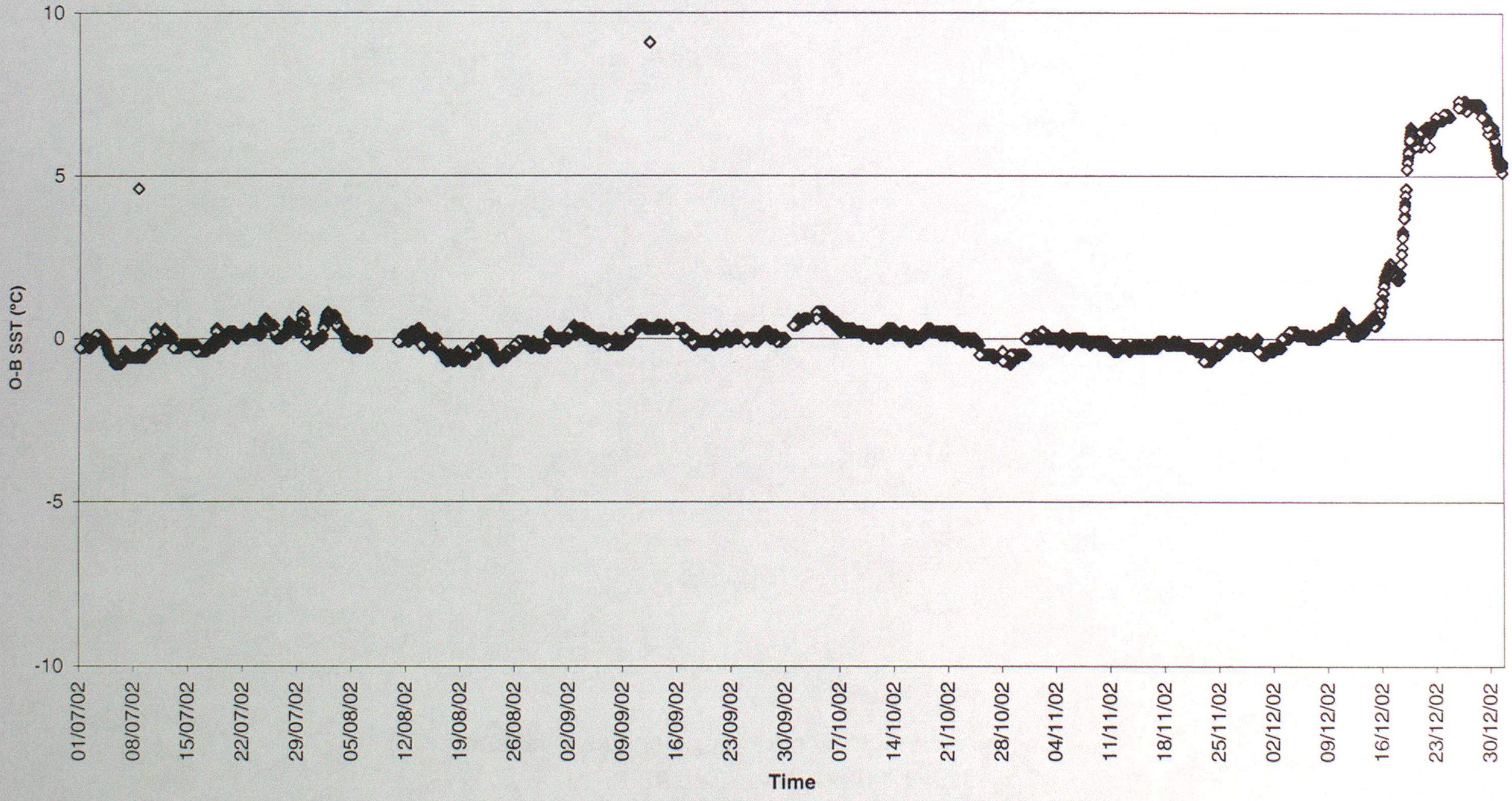
O-B SST (°C) for identifier 61659
Number of obs. plotted = 219   Number of outliers = 0



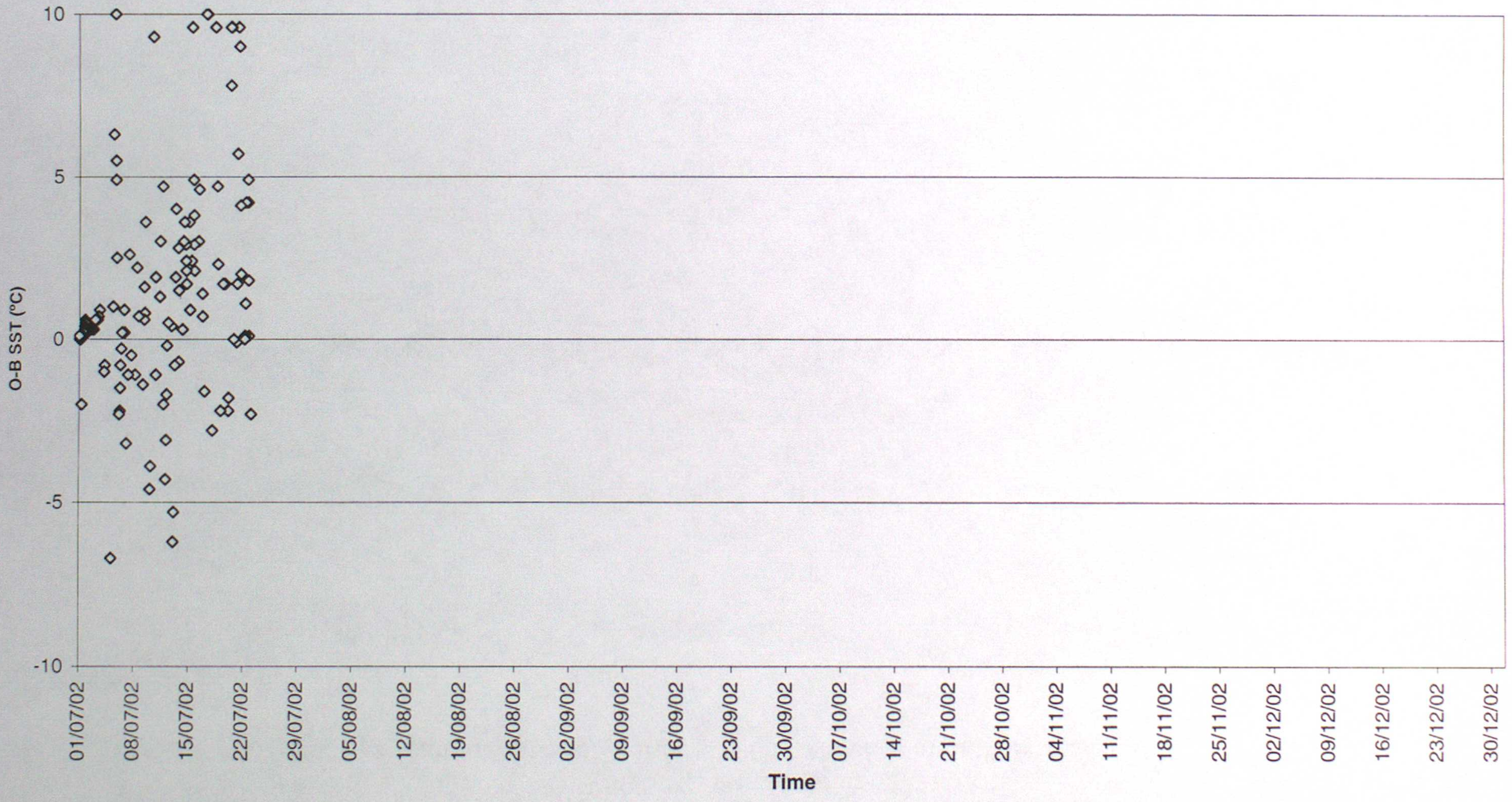
O-B SST (°C) for identifier 61669
Number of obs. plotted = 182   Number of outliers = 0

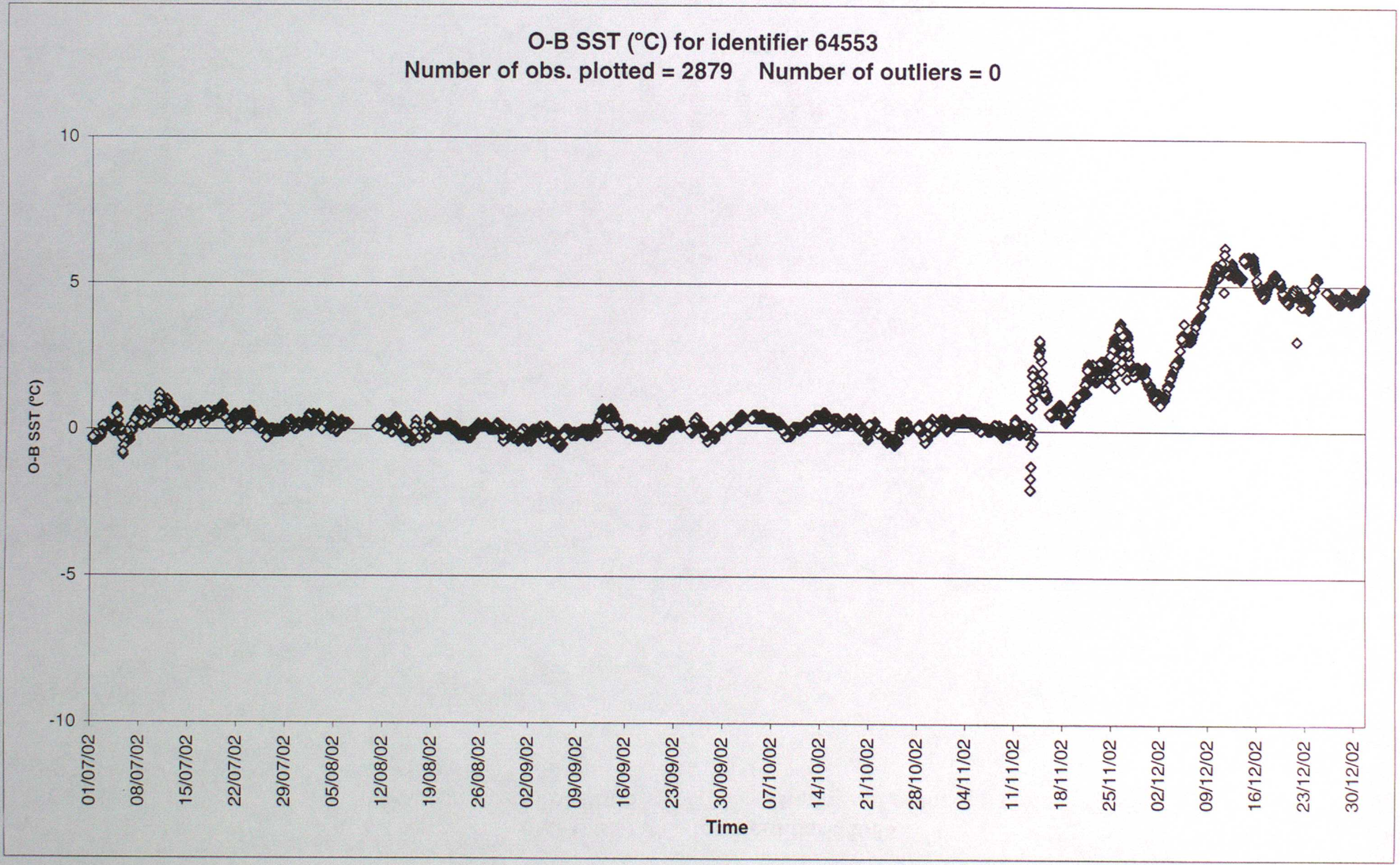


O-B SST (°C) for identifier 62711
Number of obs. plotted = 5900   Number of outliers = 1

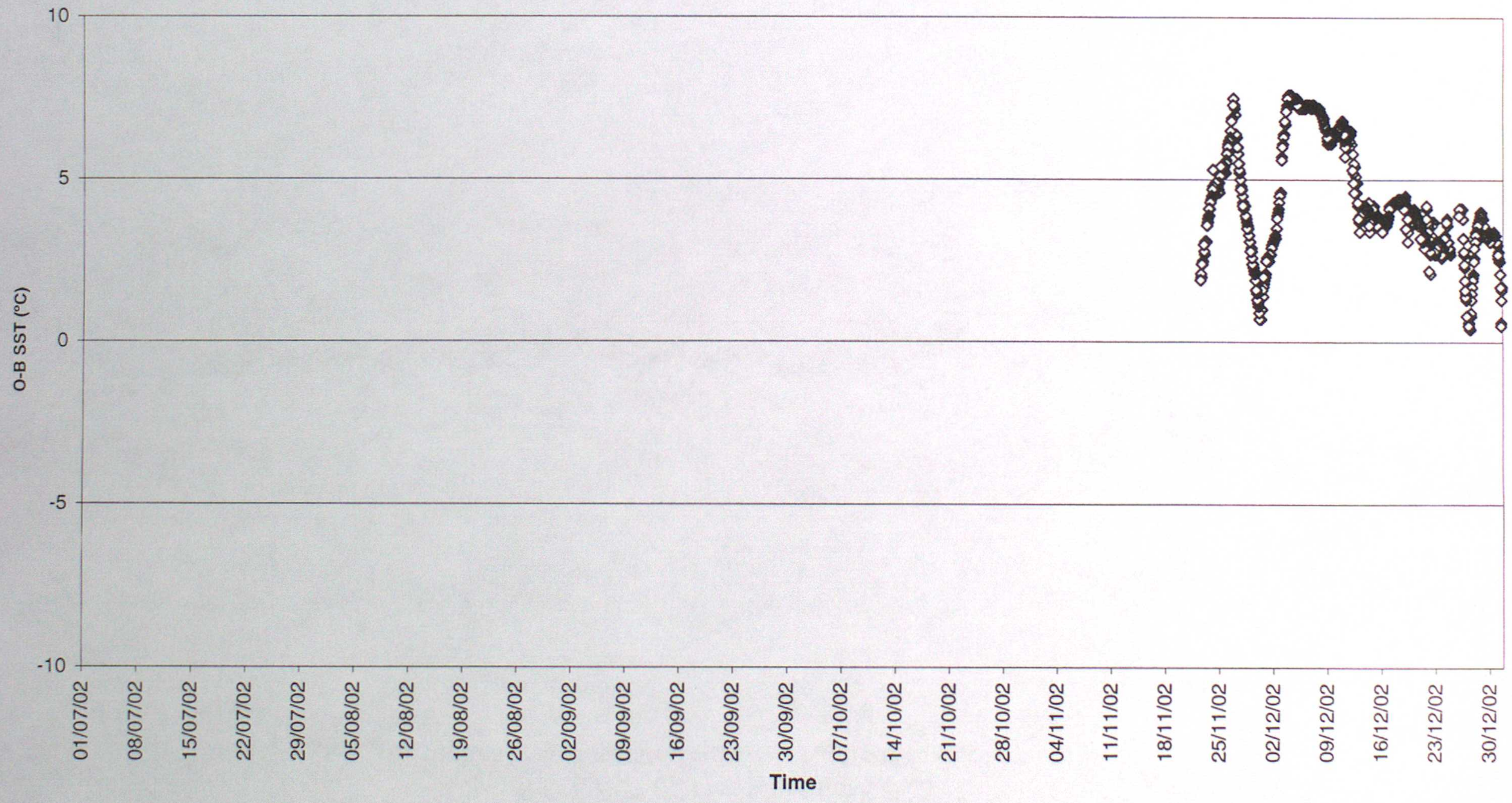


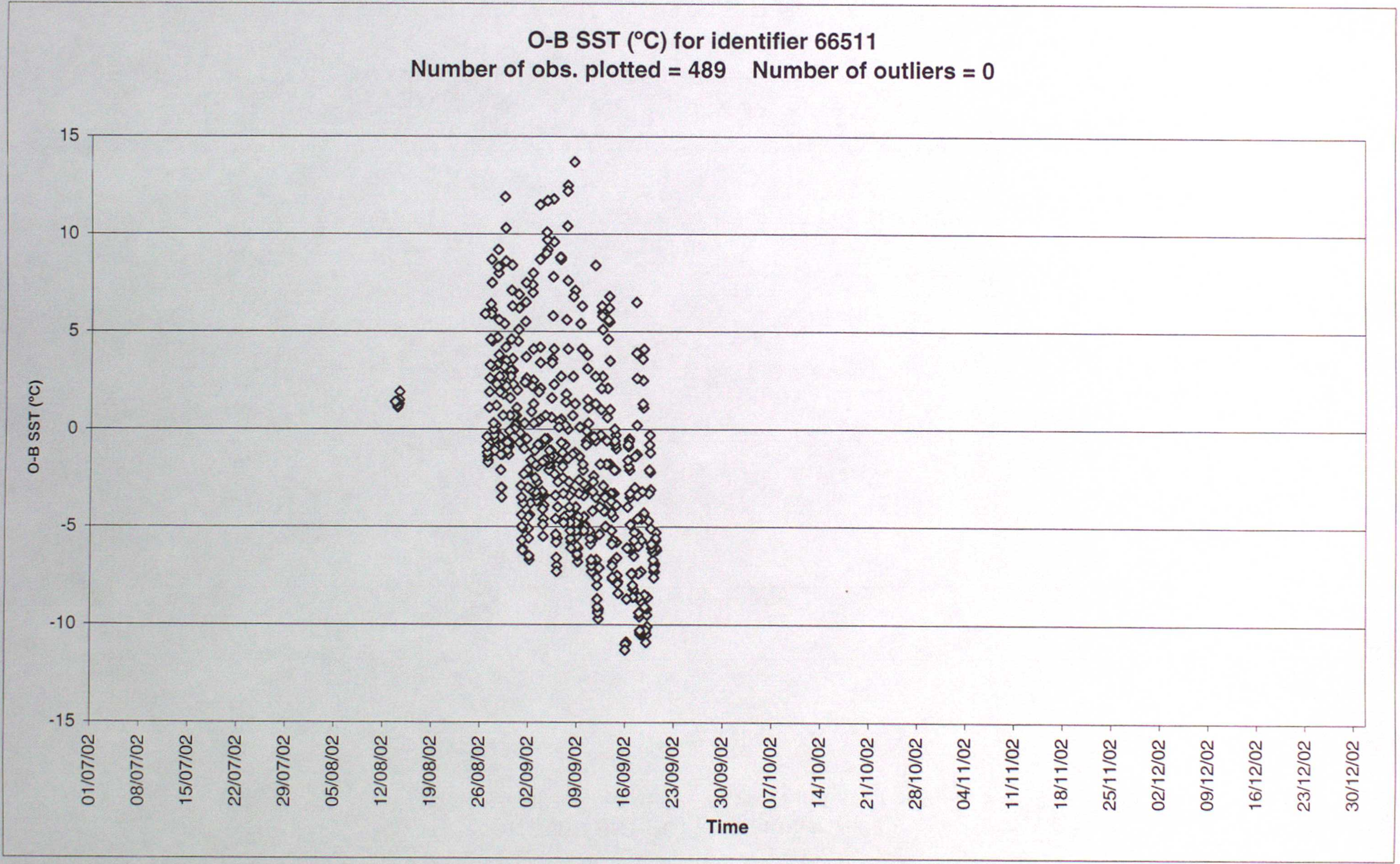
O-B SST (°C) for identifier 64549
Number of obs. plotted = 153   Number of outliers = 8




O-B SST (°C) for identifier 64553
Number of obs. plotted = 2879   Number of outliers = 0

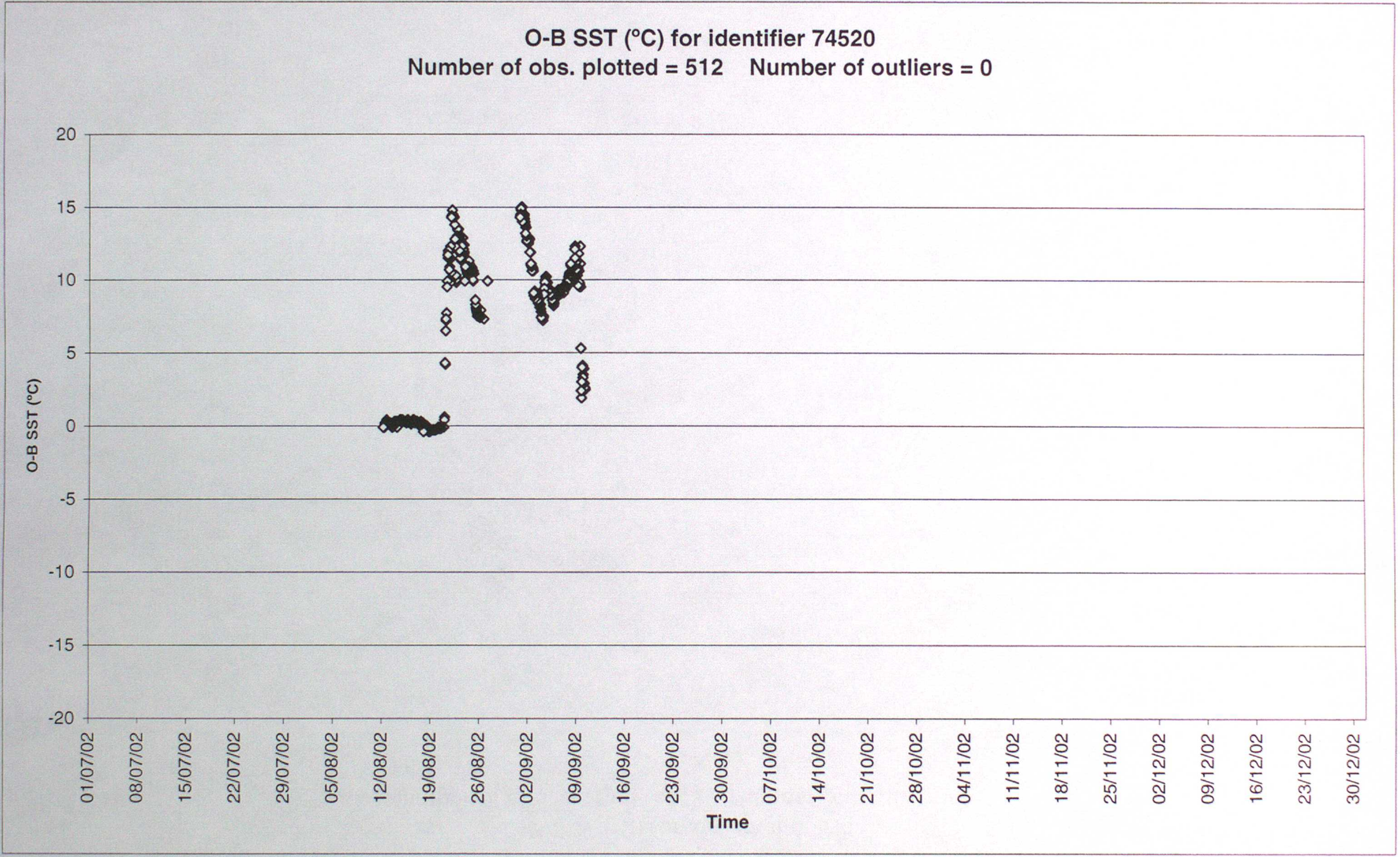
O-B SST (°C) for identifier 64606
Number of obs. plotted = 865   Number of outliers = 0





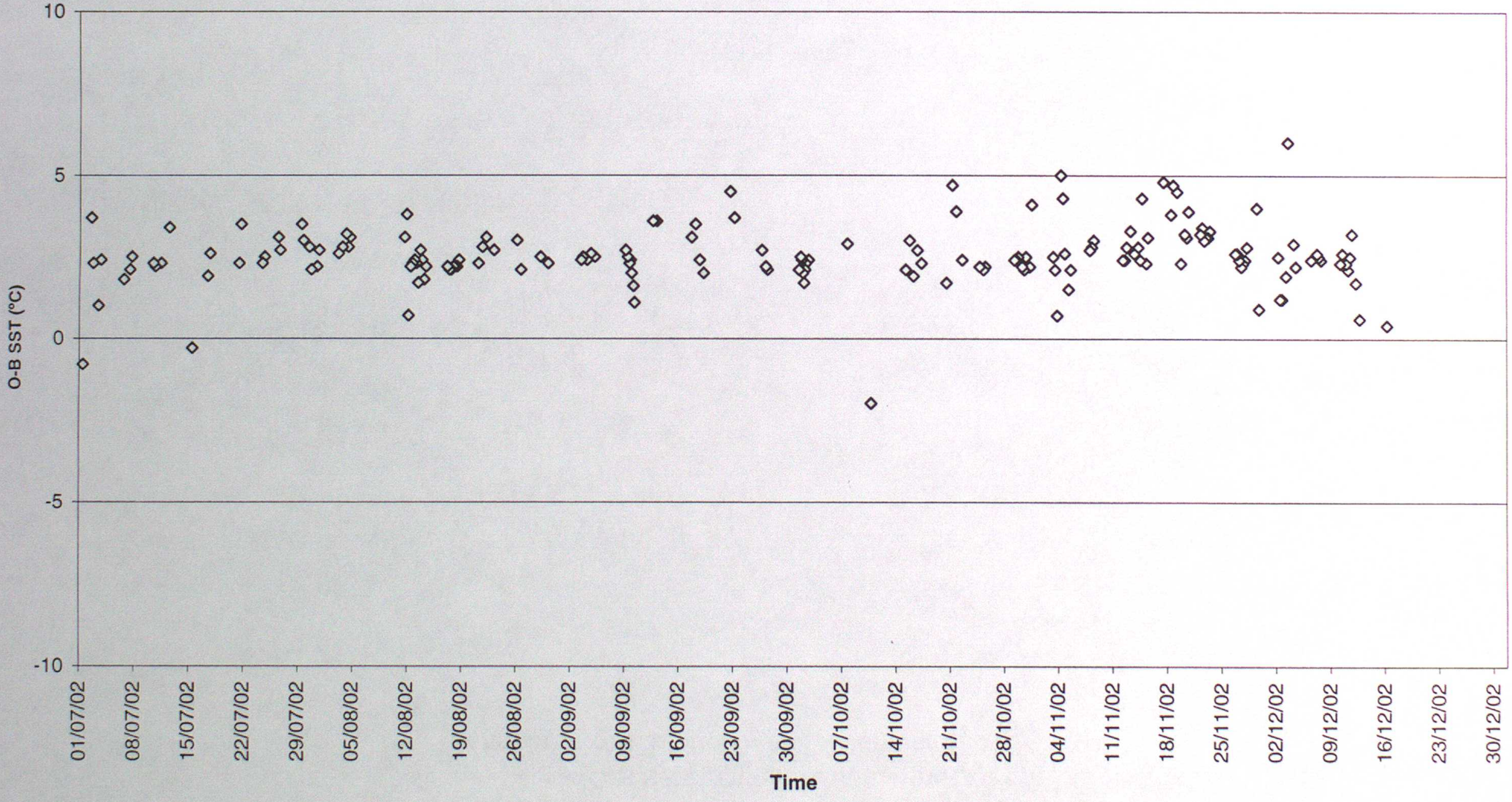
O-B SST (°C) for identifier 66511

Number of obs. plotted = 489   Number of outliers = 0

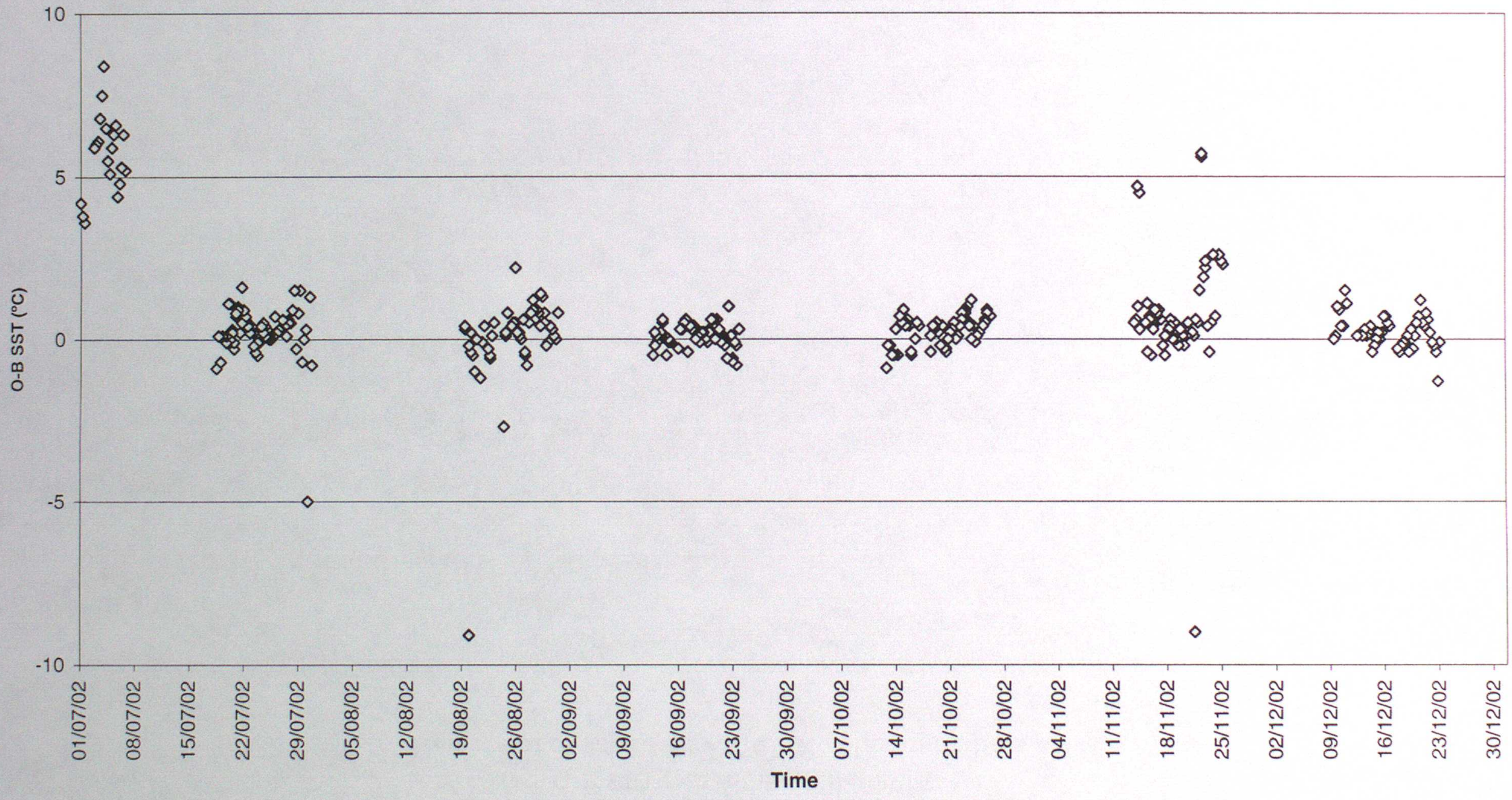


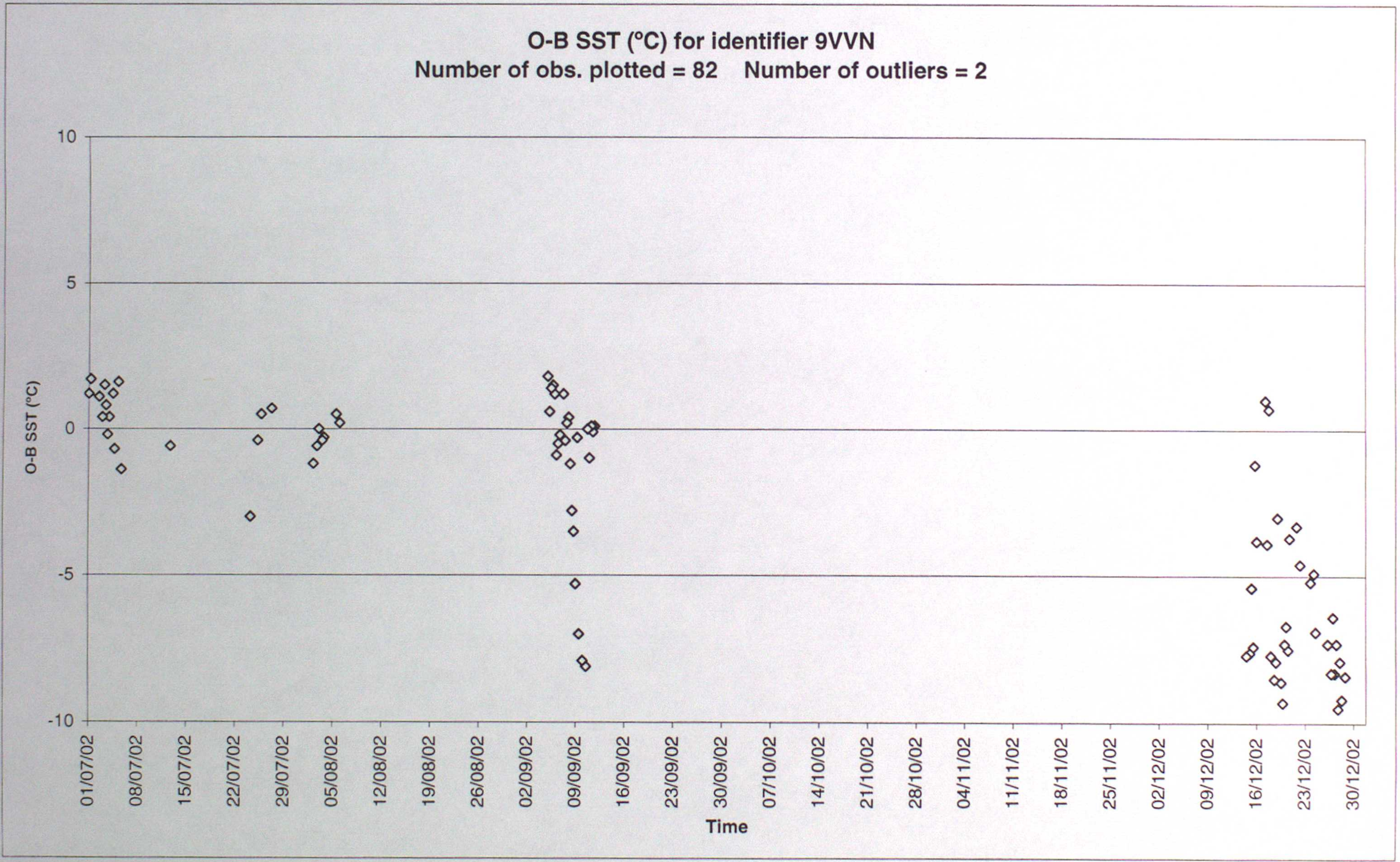
O-B SST (°C) for identifier 74520
Number of obs. plotted = 512   Number of outliers = 0

O-B SST (°C) for identifier 8PNI
Number of obs. plotted = 176   Number of outliers = 0



O-B SST (°C) for identifier 9VRA
Number of obs. plotted = 422   Number of outliers = 0




O-B SST (°C) for identifier 9VVN
Number of obs. plotted = 82   Number of outliers = 2
O-B SST (°C)
10
5
0
-5
-10
01/07/02
08/07/02
15/07/02
22/07/02
29/07/02
05/08/02
12/08/02
19/08/02
26/08/02
02/09/02
09/09/02
16/09/02
23/09/02
30/09/02
07/10/02
14/10/02
21/10/02
28/10/02
04/11/02
11/11/02
18/11/02
25/11/02
02/12/02
09/12/02
16/12/02
23/12/02
30/12/02
Time